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The Association's Work during 1940-41

(Part 1)

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Progress in Tuberculosis Control in Canada*

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WHEN the subject of this paper was assigned to me by the program committee, I noted that it was twenty-five years ago that the Canadian Public Health Association met in the City of Quebec. It was a meeting of the Canadian Public Health Association and the health officers of the Province of Quebec. The Canadian Tuberculosis Association met at the same time. Many interesting comparisons can be made if we use this as a basis to judge the progress that has been made in the last quarter of a century.

In reading the report of that meeting we remember the men who played a very prominent part in the campaign at that time, and who are no longer with us. Such names as Dr. Lessard, Dr. Rousseau and Dr. Dubé will always be remembered whenever the tuberculosis campaign is discussed in this province.

The story of the campaign against tuberculosis in the past twenty-five years is an inspiring one. What would be the impressions of a delegate of the meeting twenty-five years ago, at this one? He would be impressed with the development of public health departments in all Canadian provinces. He would be astounded at the number of health units now in operation in the Province of Quebec, and the growth of all health services. He would note the great progress that has been made against bovine tuberculosis in Canada. Two provinces, Prince Edward Island and New Brunswick, are now tuberculosis-free areas, and the testing of cattle has been going forward in all the others. He would note that bovine tuberculosis has been completely conquered in the United States. He would find that the pasteurization of milk is now a health regulation in all large cities, and that Ontario, two years ago, had passed a law requiring that all milk offered for sale be pasteurized.

*Presented at the thirtieth annual meeting of the Canadian Public Health Association, Quebec, June 11, 1941.

He would note the progress made in vaccination against smallpox, and that the Anti-Vaccination League, which was then very vociferous, has now ceased to trouble. He would note the increasing use of toxoid against diphtheria, and that in a number of large cities there was not a single case of diphtheria in 1940.

One resolution that was passed at the meeting twenty-five years ago was that a Federal Department of Health should be formed that could develop health services in all the provinces. It would no doubt be a surprise to a delegate of the meeting of twenty-five years ago to learn that the provinces were the first to develop health departments, and that the Federal Department has as yet taken no great part in the establishment of provincial health departments.

What is the situation in regard to tuberculosis? Here we note the value of the Dominion Bureau of Statistics, which was established in 1920. While most of the provinces had been keeping vital statistics for many years, there were some provinces for which figures are not available for 1916. Since 1921, however, figures are available for all provinces and we note the reduction which has taken place as follows:

DECLINE IN TUBERCULOSIS DEATH RATES FROM 1921 TO 1939 IN THE WHITE POPULATION

	1921	1939	Reduction (per cent)
Canada	87.6	47	45
Prince Edward Island	144	61	57
Nova Scotia	134	77	42
New Brunswick	106	62	41
Quebec	122	81	33
Ontario	71	26	60
Manitoba	69	32	53
Saskatchewan	43	17	60
Alberta	53	19	64
British Columbia	78	46	41

At the meeting in 1916, it was mentioned that the number of deaths from tuberculosis in the Province of Quebec was about 3,000. Actually the number was 3,327 and the population was then about 2,254,000, as compared with 3,280,000 for 1940, and the number of deaths for the year 1940 was 2,493, so that we might conclude that tuberculosis deaths have been reduced by about fifty per cent.

Considerable discussion took place on failure of notification of tuberculosis by the medical profession. It was strongly argued that this should be made compulsory, with strong emphasis on compulsion. We have made great progress in the notification of tuberculosis, but compulsion has played very little part, and the solution to the problem came by attacking it from a different angle.

It is to be noted that at that time there were dispensaries only in Quebec and Montreal. Anyone who compares the facilities for diagnosis today with the lack of these facilities twenty-five years ago, can get some idea of how far we have travelled. The chain of diagnostic clinics which covers all Canada and examines hundreds of thousands of patients each year provides the answer. These clinics are the link between the practising physician, the sanatoria and the

health department. They provide a practical answer to the notification of tuberculosis for which compulsion was advocated so strongly twenty-five years ago.

The first duty of the tuberculosis clinics, when introduced, was to prove their worth to the general practitioners so that they would make full use of them in the diagnosis of tuberculosis in the community. There was a time when they may have been looked upon with suspicion by the practising physician as another attempt by the health official to invade his domain. I think it is a tribute to the men who have organized these clinics that they are now so wholeheartedly accepted by the physicians, and indeed are looked upon by them as indispensable. They have taken on other than purely diagnostic functions. Their duties now include supervision of tuberculous patients who have been discharged, or who are taking treatment at home. They also administer pneumothorax refills to patients discharged from sanatoria who require them.

Perhaps their greatest function is their efforts to secure earlier diagnosis. Are they diagnosing tuberculosis in an earlier stage? There is no doubt that the disease is coming to light much earlier than formerly. While we are still disappointed at the number of patients who are admitted to sanatoria with far-advanced disease, the number whose condition is hopeless on admission is very much reduced. The reason that they are advanced in many instances is because tuberculosis is advanced before symptoms appear. The hope for early diagnosis is to anticipate the disease before it has caused symptoms, and with this hope, the campaign has explored further avenues of case-finding by surveys. These are:

1. Contacts of known cases and deaths. These are ten times as likely to have tuberculosis as other families.
2. Nurses and nurses-in-training.
3. University and normal-school students.
4. Teachers.
5. High school and public school students.
6. Mental hospitals.
7. Mining industries and other industries.
8. Recruits for the army.
9. Domestic servants.
10. Mothers.
11. Indian reserves.

These are some of the clues that have been followed to make our case-finding as complete as possible. Where all these avenues are explored, it is possible to diagnose three new cases per annual death, and when this ratio is reached, 50 per cent will be minimal.

Great progress has been made in providing sanatorium beds. Twenty-five years ago there were less than 2,000. This year the number will reach nearly 11,000. Case-finding has always kept ahead of treatment facilities and has not yet been overtaken. Our standards have changed as to requirements in order to avoid waiting lists. First we believed that a bed per death would take care of the problem. Now we know that two beds per death is a minimum, and three

are required to isolate all cases. Ontario and Saskatchewan have three beds per death for the white population. There are no waiting lists at the sanatoria, and their death rates are 28 and 24 per 100,000, as against 63.8 for the rest of Canada. The lack of treatment beds is a real bottleneck to tuberculosis control. We need 2,000 more beds for Quebec and the Maritime Provinces and another 600 beds for the Indian population.

But the greatest bottleneck of all has been the lack of financial provision for indigent tuberculous patients. Very few patients have been able to pay the cost of hospitalization for a disease as long drawn out as tuberculosis. For years in all the provinces it was necessary to make arrangements through the local municipal authorities and it became difficult in those municipalities having a high incidence of tuberculosis. It was a most unsatisfactory way of dealing with an infectious disease. The Report of Tuberculosis Institutions for 1938 lists those patients who paid in whole or in part for their treatment in these institutions. Less than 9 per cent of the total were able to pay either in whole or in part. Of the total number of days' treatment given, 4.6 of these were paid in full by the patients, and an additional 2.5 paid in part. It must be remembered, however, that treatment in that year was free to all in Alberta and Saskatchewan. The percentage who pay their way is so small that it would seem to be almost uneconomical to maintain collection departments to attempt to collect payment. Then too, after-care and rehabilitation is a much more difficult problem than in the case of other diseases, and I cannot see the rationale of extracting money from a tuberculous patient for treatment, and then paying it back for public assistance in after-care. But we can report progress with this problem. In 1929, Saskatchewan introduced free treatment and opened the doors to every resident of the province. In 1936, Alberta introduced free treatment. In 1939, Ontario at one stroke relieved the municipalities of all responsibility in the cost of the treatment of tuberculosis. The province now pays \$2.00 per patient per day. In all these provinces, delay in the admission of patients has disappeared. In all these provinces more power has been given the health departments in the admission of open cases. Tuberculosis is never a local problem, and it is desirable that the cost of tuberculosis cases should be distributed on a provincial, rather than a municipal basis. This is fundamental to efficient tuberculosis control.

What of our methods of treatment? It might be a surprise to those who attended the meeting here twenty-five years ago to learn that there are no new weapons for the cure of tuberculosis, and that no cure for tuberculosis has been discovered. The records since that time are filled with many so-called cures and remedies for tuberculosis, none of which have stood the test of time. Some have been given to the public with high hopes that they might prove to be the panacea for which all medical authorities have been eagerly seeking. The tale of blasted hopes raised by these prematurely vaunted cures indicates that they have done a tremendous amount of harm in that patients have, in many instances, deserted the more tried methods of cure to the detriment of their own safety, and have spread the disease in the circle of their immediate friends and relations. The only ones who have benefitted from these so-called cures have been those with

financial interests. To play on the unfortunate victims of tuberculosis for gain is one of the most despicable forms of quackery.

Persons afflicted with tuberculosis have been subjected to more unscrupulous treatments and fake "cures" than any other group of individuals suffering from disease. Nostrums and quackery have cost consumptives huge sums of money, but positive proof has never been given to show that they have ever cured a single case of tuberculosis. In all instances time and money have been wasted, and not infrequently the patient's physical condition actually has been made worse.

Many "cures" for tuberculosis have been recommended by various persons, from the most eminent scientist down to the most illiterate layman, but all have been found to be worthless. Only the time-tested regime of bed rest, good food and fresh air, supplemented by modern collapse therapy in selected cases, has proved effective in the treatment of pulmonary tuberculosis.

The use of medicines in the treatment of tuberculosis has become more and more limited. It is part of the policy of education of patients and doctors alike that there is no necessity or merit in giving medicine because in the past it has been expected by the laity. Oliver Wendell Holmes' suggestion that if "All the medicine in the world were thrown in the sea, it would be good for the people but bad for the fishes" may be an over-statement, but contains some truth. Medicine has its place, but it is a significant observation that junior members of sanatorium staffs use many more drugs than the physician with more experience.

But if we are disappointed in the efforts to find a specific cure for tuberculosis, we have been encouraged by the results of methods of treatment that have been in use for many years and by the newer forms of collapse therapy, which are now available in all our modern sanatoria. Experience has shown that tuberculosis is readily curable in the early stage in as high as 80 per cent of cases. Our failure, if failure occurs, is not in the method, but because too often it has been applied, in the words of Lloyd George in speaking of our lack of defence against the dictators, "too little and too late". We have made progress in the control of tuberculosis in proportion to the extent to which we can diagnose the disease early and to make available sanatorium treatment with modern collapse therapy to all citizens who require it.

We have now a much clearer idea of the place of the sanatorium in the campaign against tuberculosis. Twenty-five years ago we looked on the sanatorium as an institution, usually located some distance from the centres of population, for the treatment of those cases of tuberculosis which did not require prolonged care. Great stress was laid on the early case and admission of advanced cases was discouraged. However, we often looked in vain for the early case. No collapse therapy was given, and nursing services were few. These institutions were successful as far as they were able to go. They were cheerful places and did much to strengthen the confidence of the public in the treatment of tuberculosis.

On the other hand it was believed possible to develop the hospital for advanced cases. This was an unfortunate name and both patients and relatives

were prone to develop the attitude, "Abandon hope, all ye who enter here". It has taken years to break down this prejudice. With the tendency to stress more rest in the treatment of tuberculosis and the introduction of collapse therapy, including pneumothorax, phrenic operations, adhesion cutting, thoracoplasty and other surgical measures for all types of cases, the same distinction cannot be made. Every institution should be able to provide all forms of treatment. Every institution must establish a reputation so that patients will readily enter and remain as long as necessary. Unless they are cheerful institutions radiating hope to the patients who enter, they defeat the purpose for which they are intended, the campaign suffers, and the taxpayers' money is wasted. Every patient who leaves against advice is a blot on the institution and represents a breakdown somewhere in service rendered.

Finally, there is the matter of education and publicity. No health program can succeed unless it has the full support of the majority of our citizens. In the past we have not paid as much attention as we should to this phase of the campaign. Our efforts have been too sporadic and too uncoordinated. I believe the Provincial Committee for the Prevention of Tuberculosis has demonstrated in this province what can be done along this line. In their endeavours they have been assisted financially by the Ministry of Health and the Canadian Life Insurance Officers Association. They have used the methods of educating the public that have proved useful in other campaigns, namely, the radio, the press, the public meeting, pamphlets, and movies. Much educational work has been done in the schools, colleges, and other institutions of learning. I am sure that the Government and the people of the Province of Quebec have a clearer conception of the tuberculosis problem than they ever had before.

To sum up the situation we might say that while progress in the control of tuberculosis in the past twenty-five years has been remarkable, much remains to be done. The greatest problem is to provide facilities for diagnosis and treatment on a comparable basis for all parts of the Dominion. Quebec and the Maritimes require an additional 2,000 beds. A larger unit of administration is advisable, with free treatment on a provincial basis. This is desirable so that there will be prompt admission of open cases, now a source of infection to their communities.

Parasitic Infestations of Fish*

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SINCE fish are the hosts of so many different kinds of parasites, I believe that I had better restrict the scope of my paper very materially and entitle it : "A few fish parasites of interest to public health".

Last winter Dr. W. A. Gill, Food and Dairy Inspector for the city of London, had occasion to condemn a few shipments of fresh-water fish on account of numerous cyst-like bodies infesting their flesh. On examination these cysts were found to contain the larvae of a tapeworm, *Triaenophorous tricuspidatus*, and it was that experience, I suspect, that was responsible for this paper on today's program.

The infested fish were whitefish, *Coregonus clupeaformis*, and had come from Manitoba. Two shipments were involved: the first, strange to say, found its way to London, after having been condemned in Chicago.

Now this tapeworm, *Triaenophorous tricuspidatus*, is particularly interesting in that its life cycle departs considerably from that of the well-known tapeworms, for example, the beef tapeworm, *Taenia saginata*, the hog tapeworm, *T. solium*, and the dog tapeworm, *Dipylidium caninum*. In the dog tapeworm you will recall that fleas and lice serve as the hosts for the bladder worm (larval) stage and that the intestines of dogs, cats, or even humans, provide a home for the adult worms. This species then, as well as the two others mentioned, is a two-host parasite.

Triaenophorous tricuspidatus, however, requires three hosts—two intermediate and one final. The first intermediate host is evidently some species of copepod, probably of the genus *Cyclops* or of *Diaptomus*. These small crustaceans pick up the ciliated tapeworm embryos from the water and, instead of digesting them, accommodate them as guests. We shall have more to say, however, of these copepods and the part they play in the life cycle of another tapeworm, the "fish" or "broad" tapeworm. The second intermediate host of *Triaenophorous tricuspidatus* is a fish, and here the whitefish, *Coregonus clupeaformis*, and various species of the genus *Leucichthys*—regionally known as lake herring, tullibee, Lake Superior longjaw, and cisco—are common examples. The final host is the common or northern pike, *Esox lucius*, and perhaps also the muskellunge, and the wall-eye pike or pickerel. In the final host the adult worms may be found in abundance during winter and spring in the fish's intestine. Later they become fewer in number and may even disappear entirely in the summer.

But it is the stage in the second intermediate host that particularly interests

*A paper presented at the twenty-sixth annual conference of the Ontario Health Officers Association, Toronto, June, 1940, and subsequently revised.

us. The fish that were condemned in London were, as stated before, whitefish. When the cysts were opened, long, slender, white worms were released. These were fairly active. Their chief activity consisted in lengthening and contracting the anterior part of the body. At this time one could plainly see the larval scolex (Fig. I, 1-6) form and reform. The worms in this stage may be anywhere from 1 to 30 cm. in length; they are wrinkled cross-wise but not segmented as in the adult stage. The scolex, the so-called "head", when fully expanded has a some-

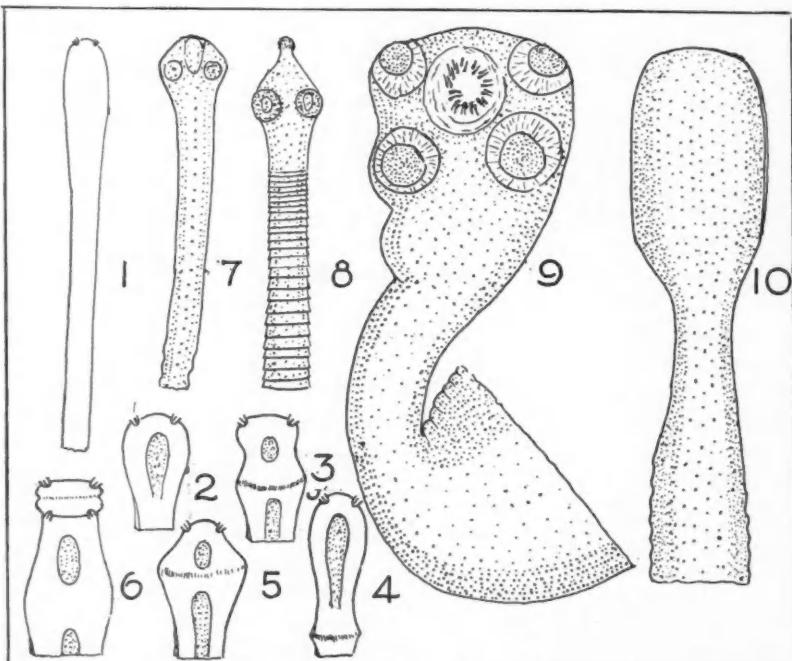


FIGURE I. 1-6, Free-hand drawings of the anterior end of plerocercoids of *Triaenophorus tricuspidatus*; 2-5, more or less successive stages of elongation of the anterior end; 6, anterior face of scolex turned up showing the four 3-toothed hooks; 7 and 8, scolex of dog tapeworm—*Dipylidium caninum*, 8, with rostellum protruded; 9, scolex of hog tapeworm, *Taenia solium*, anterior face turned up showing the four suckers and the double circlet of hooks on the rostellum; 10, scolex of *Diphyllobothrium latum*. Figures 1-4 drawn to the same scale.

what truncated anterior end and bears four three-pronged hooks. It also shows the longitudinal lateral grooves characteristic of the adults of the order (Pseudophyllidea) to which this species belongs.

The cysts containing these larval tapeworms vary in length from about one-half to two and one-half centimeters and may be said to be somewhat elliptical in shape. They apparently tend to locate chiefly in the region between the head and the dorsal fin where, within the muscle-mass, they generally lie parallel to the fibres. They are somewhat yellowish to pinkish in colour in fresh fish but

very yellow in frozen ones. In the cysts the larvae lie in coils and are surrounded by a yellowish fluid. Sometimes the fluid seems to dry up within the cysts, leaving the larvae shrunken and withered. At other times fluid only may remain.

The extent to which Canadian fishes are infected with these cysts constitutes a serious economic problem. In Manitoba infection in whitefish has been found to be as high as 45 per cent in May, and in the light-backed tullibee 60 per cent in June. From September to January both kinds of fish showed a decrease in parasitization.

In 1921 the United States government placed a restriction on the importation of the cisco from Canada and, as we have learned from our experience, whitefish too are liable to be rejected. Our export trade in these fresh-water fishes is no small item. In the fiscal year 1937-38 we exported to the United States 12,917,100 pounds of whitefish and 17,133,600 pounds of lake herrings.

Although there is nothing to show that infected fish affect human health, we must admit that the presence of these larval tapeworms is most distasteful to our sensibilities. The presence of a few cysts can be winked at and they can be cut out by a wise cook but when they are abundant the situation is quite different. I have been informed by a Michigan parasitologist that some years ago he examined some whitefish, from western Canadian lakes, which were so badly infected that it would have been impossible to clean them up without tearing the fish into small pieces. Fortunately the human intestine, as well as that of any other *mammal*, is apparently incapable of harboring the adult worm. This naturally relieves us of considerable anxiety.

There is, however, another and somewhat similar tapeworm parasitic as a larva in fish at the presence of which we cannot afford to wink. It is the "broad" or "fish" tapeworm, *Diphyllobothrium latum*. This has been stated to be the most serious of all human tapeworms. With this I can scarcely agree, but it is no doubt the one species with which we in Canada should be the most concerned. In central Europe and in the Baltic countries, this tapeworm has been known for centuries as a common human parasite and in some localities 80 to 100 per cent of the people are infected. In recent times European immigrants around the Great Lakes have established the parasite in Minnesota, northern Michigan, and in adjacent lakes in the Canadian forests; at least we think these immigrants are to blame. Man is an important host but the worm also develops in dogs, cats, and other fish-eating mammals. Wild carnivores, especially bears, which also have been found susceptible, no doubt help to perpetuate the parasite.

The adult worm is a veritable monster. It is stated to grow to lengths ranging from 10 to 60 feet. The segments, proglottids as they are called, may number 3000 to 4000 in large specimens. Then, too, they are relatively very broad, measuring from one to two centimeters across, hence the name "broad" tapeworm. The scolex is slender and almond-shaped (Fig. I, 10), and bears two lateral grooves which function as suckers. It will be remembered that the common tapeworms mentioned before have four roundish suckers in their scoleces (Fig. I, 7, 8 and 9).

This tapeworm is another three-host species. The eggs, which are produced

in enormous numbers (about 36,000 daily), must find their way to water in order to survive. As they are heavier than water they sink and here if the temperature is favourable (15° – $25^{\circ}\text{C}.$) they hatch into minute spherical, ciliated larvae (Fig. II, 3 and 3a). Such a larva is called a *coracidium*. If the coracidium is lucky it is spied and eaten by a copepod, a very small crustacean as stated before. In the Great Lakes region three species of copepods of the genus *Cyclops* may serve as hosts. One of the guilty species is *Cyclops prasinus*, and in passing, I might add that it has been found in abundance in the London area.

In *Cyclops* (Fig. II, 4) (the first intermediate host) the coracidium invades the body cavity by boring through the intestinal tract and in about two weeks'

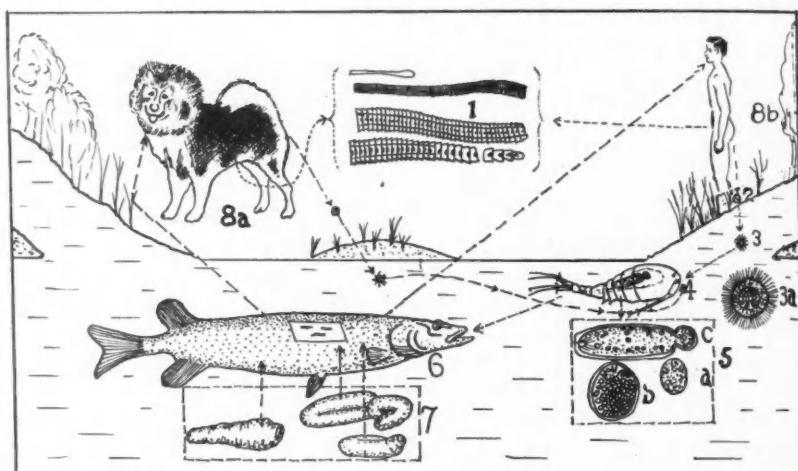


FIGURE II. Life cycle of the "broad" tapeworm—*Diphyllobothrium latum*. 1, Adult tapeworm (sections); 2, egg; 3, ciliated larva (oncosphere); 3a, oncosphere enlarged; 4, *Cyclops strenuus* containing procercoeid; 5, developmental stages of procercoeid in *Cyclops*; 6, pike, *Esox estor*, showing three plerocercoids; 7, plerocercoids from fish; 8a, Husky dog, one of adult hosts; 8b, another common adult host. (Parts 1, 3a, 4, 5, 6, 7, and 8a after Wardle.)

time grows to twenty or more times its former size. In this stage it is known as a *procercoeid* (Fig. II, 5), and is now ready for the next host.

Copepods are much sought after as food by fishes and the young procercoeid, therefore, stands a good chance of being eaten again, this time along with its host, the *Cyclops*. If this predator happens to be a pike (Fig. II, 6), a pickerel, a sauger, or a yellow perch, the procercoeid has struck luck, for here it is again likely to escape digestion and to have another opportunity of boring to safety through another intestinal tract. This time, however, it proceeds to invade the muscles. Here it develops into the next larval stage, the *plerocercoid*. This is an elongated form and may be club-shaped, or even worm-like (Fig. II, 7). Its size may vary from a few millimeters to several centimeters. The plerocercoid is not encysted as was the case in *Triaenophorus bicuspidatus*. In uncooked fish

the plerocercoid's opaque, white colour shows clearly through even 0.5 cm. of translucent flesh. One must not confuse these plerocercoids, however, with possible cysts of other tapeworms, or even of flukes, that may be present. Cysts of tapeworms of the genus *Protocephalus*, to which I shall refer later, are often present within the body but these have four or five cup-shaped suckers in the scolex. In the "broad" tapeworm plerocercoid, the one under discussion, the anterior end has a depression due to the inverted scolex.

Still one more risk has to be taken by this tapeworm and that is the finding of the third and final host. In the case of humans, infection usually results from eating raw or imperfectly cooked fish. Of course the plerocercoids may be conveyed to the mouth by the hands to which they may cling when the fish is being prepared for cooking.

Vergeer, an investigator of this parasite, suggests that it would be well if many persons were to cook fish about twice as long as they are accustomed to doing. Chandler, another parasitologist, remarks that although worms *cooked* in the flesh cannot produce infection, the eating of cooked worms is not aesthetic.

So much for larval tapeworms that may infect the flesh of fishes. Besides tapeworms, however, there are other worm-like forms that often disturb our sensibilities. One is frequently asked, for example, to account for the "grub-biness" so often encountered in black bass and perch during the summer months. These so-called grubs are really not grubs at all; they are not insect larvae but the larval stages of another group of flatworms, flukes this time, and not tapeworms.

The flukes that commonly cause "grub-biness" in the black bass belong to two different genera. They are *Crassiphiala ambloplites* and *Clinostomum marginatum*. The former is responsible for the black "grubs" and the latter for the yellow ones.

The black "grub" infests large and small-mouth black bass and apparently rock bass and a few of the species of sunfishes. The adult fluke (Fig. III, 1) is found attached to the mucosa of the intestine of the common fish-eating bird, the kingfisher. The eggs (2 and 3) are passed in the droppings of the bird and hatch in about three weeks into active ciliated larvae (5). The newly hatched larva, or *miracidium* as it is called, swims about in the water in search of the next host—this time a snail. It evidently has a choice between two species of snails (6), *Heliosoma trivolvis* and *H. campanulata*. On finding the proper species it bores into it and goes through a complicated series of stages consisting of, first, the mother sporocyst (7), second, the daughter sporocysts (8)—long slender forms, and third, the *cercariae* (9 and 10). In this stage the parasite escapes from the snail and again seeks adventure in the open. It should be mentioned, however, that its numbers have been materially increased since each stage is part of a repeating, reproductive cycle.

The cercaria has the characteristically bifurcated tail of its group and represents the second free-swimming stage in the life history of this fluke. It now swims about in search of its second host—the black bass, both large-mouth and small-mouth, being common victims. When it finds its proper host it bores into

the skin and locates beneath the scales, or in the fins, and proceeds to develop into the *metacercaria*—the well-known black “grub”.

The kingfisher (Fig. III, 13) on eating one of these infected fish becomes the final host. Here in the intestine, the “grubs” mature into flukes and in about 27 days the whole fluke life history begins all over again.

The life cycle of the yellow “grub” is very similar to that of the black one just described. The adult parasite, the fluke (Fig. IV, 1), is somewhat tongue-shaped. This is, I might add, the characteristic shape of flukes. In this stage it infects the mouth cavity of the great blue heron, the black-crowned night heron, and the American herring gull. The eggs (2 and 3) are shed as the bird

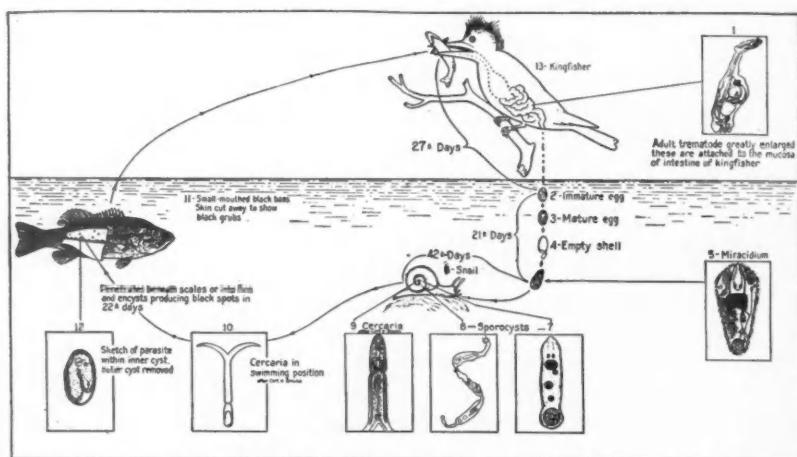


FIGURE III. The life cycle of the black grub of bass—*Crassiphiala ambloplitis* (Hughes). 1, Adult trematodes lie attached to the mucosa of the intestine of the kingfisher, *Streptoceryle alcyon* (Linnaeus); 2-4, Eggs must reach water where they develop and later hatch, liberating a ciliated miracidium; 5-9, The miracidium penetrates two species of fresh-water snails, *Heliosoma trivolvis* (Say) or *H. campanulatum* (Say); the miracidium metamorphoses into a mother sporocyst. This produces long, slender, daughter sporocysts, which in turn produce cercariae; 10-12, The cercariae actively penetrate the common, green and banded sunfish, rock bass, small and large-mouthed bass, and encyst upon the fins and in the myotomes (flesh); 13, The kingfisher receives the parasite by eating infected fish. (After Hunter and Hunter—courtesy of the State of New York Conservation Department.)

dips its bill in the water. This is probably the normal method of egg disposal, although fecal smears have also shown the presence of eggs. Some of the eggs hatch immediately while others, undeveloped ones, have been found to require 19 days to hatch.

The miracidium (Fig. IV, 4) swims about by means of the cilia which cover the body. If it is successful in finding the right species of snail—apparently, again either of the two species of *Heliosoma*—it bores into it by the aid of a small anterior, protrusible papilla. This bears tiny styles at its distal extremity—the business end. In the snail the mother sporocyst (6) gives rise to sac-like animals, the *rediae* (7). In this fluke, however, there are two generations of *rediae*—

mother and daughter. The daughter redia produces the next free-swimming larval stage—the cercaria (8 and 9). This again has a bifurcated tail. The next host is a fish and on finding it the cercariae penetrate beneath the scales, as in the case of the white "grub". Here the metacercariae (10), the so-called yellow grubs, are produced. The cercariae are apparently not as exclusive in their host preferences as the miracidiae, since metacercariae have been reported from eighteen different species of fishes.

The "grubs", many of which can be seen through the skin, show as whitish spots. They are enclosed in cysts and within them the worm is bent twice (Fig IV, 10). When released it begins to crawl about. With the hand lens

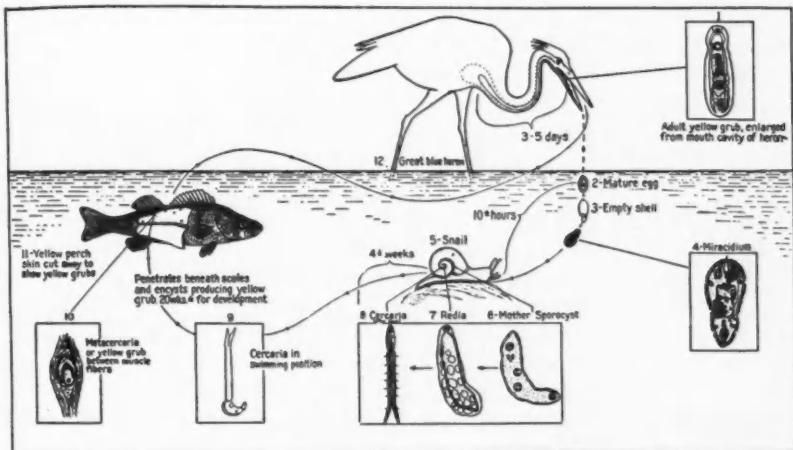


FIGURE IV. The life history of the yellow grub of bass—*Clinostomum marginatum* (Rud.). 1, Mature flukes, *Clinostomum marginatum* (Rud.), live in the buccal cavity of the great blue heron, black-crowned night heron and American herring gull; 2-5, Mature eggs may reach the water as the bird feeds. These hatch in $\frac{1}{2}$ to 4 hours and remain viable for 6 to 8 hours. They penetrate the snail, *Helisoma campanulatum* (Say), or *H. antrosum* (Conrad); 6-9, Miracidium upon penetration is transformed into a mother sporocyst; this in turn produces rediae and later daughter rediae. These yield fork-tailed cercariae; 10-12. Sunfish, bass, perch, minnows, etc., may be infected. The parasite lives for months. If eaten by the bird host, it excysts in the stomach, climbs the esophagus and matures in 3 to 5 days. (After Hunter and Hunter—courtesy State of New York Conservation Department.)

two suckers can be made out, one, the oral, through which the mouth opens, and the other, the ventral, situated a short distance behind the oral.

To make the life history complete the fish must now be eaten by one of the large water birds previously mentioned. The development in the snail requires about 4 weeks, that in the fish about 20 weeks, and in the birds 3-8 days.

Here it should be mentioned again that by the time the cercarial stage is reached, the number of the parasites has materially increased since each stage represents a multiplication of individuals.

Incidentally, it will be of interest to note that what is sometimes called swimmers' itch is caused by cercariae, cercariae that have abandoned their snail

hosts and are on the hunt for their next victims. Several species of flukes are involved but for none is man a normal host. This is fortunate both for the flukes and for man, particularly for the flukes, since if man were even a successful host, the fluke's life cycle would run into a cul-de-sac, as human flesh so rarely finds a place in any animal's diet.

Earlier I referred to *Proteocephalus* as another tapeworm of fishes. *Proteocephalus ambloplites* is common as an adult tapeworm in the intestinal tract of black bass. The plerocercoids of this worm, however, infect the young of black bass (both species), rock bass, sunfish, perch, yellow pickerel and the top minnow. These then serve as the second intermediate hosts. In this stage the plerocercoids may be found infecting any of the internal organs except the air-bladder and the heart. Legal-sized black bass may, therefore, serve in the dual capacity of a second intermediate host and a final one.

So far I have limited this discussion to two classes of flatworms, Cestoda (tapeworms) and Trematoda (flukes). In closing I shall make a few remarks on the Nematoda or roundworms. Roundworms also constitute a common fish parasite and are found in various parts of the body. The species of particular interest in this discussion often occurs in the flesh of the eel-pout and the cod of the Atlantic Coast. It is found coiled up in cavities and when freed will wriggle about long after the fish is dead. Those who handle cod and have had their sales affected by the presence of this worm not infrequently establish the procedure of examining every cod fillet on a glass plate with a strong light beneath. This shows up the worms and permits their removal with forceps. This worm occurs more frequently in shore fish than in those caught on the "banks". Companies depending on "bank fish" for their supply may examine only representative samples and then resort to the examination of all fillets only if roundworms are found. While cooked worms are not at all inimical to health they are decidedly objectionable for aesthetic reasons. For my part, after having seen coiled worms a good deal thicker than the lead of a lead pencil in canned fish I can well testify to their unappetizing effects.

These are just a few of the many parasites to which fish are subject. In a recent study on fish parasites of Lake Erie, Bangham and Hunter list close to one hundred different kinds of parasites. Among these there were 48 different flukes, 22 species of tapeworms, and 18 of roundworms. Truly fish, too, are plagued by the ills to which "flesh is heir".

The St. James-St. Vital Health Unit, Manitoba*

I. M. CLEGHORN, M.D., D.P.H.

Medical Director†

THE St. James and St. Vital Health Unit serves the two suburban municipalities of St. James, lying to the west of the City of Winnipeg, and St. Vital to the south. They are separated by a distance of six miles. The population of the unit is slightly over 24,000 persons, and the area 30 square miles.

The unit was organized in August 1931, with financial assistance from The Rockefeller Foundation and the Provincial Department of Health. Previously the St. James Unit had operated alone for one year, when it was decided that for a slightly larger budget, two municipalities could be administered together, to the advantage of both.

The personnel consists of a full-time staff of two public health nurses, two sanitary inspectors, two secretaries, and a medical director. An office is maintained in the municipal hall in each municipality, in charge of a secretary. The combined records and the financial administration are handled through the main office in St. James. Local records are kept in each office for their respective districts. One nurse and one inspector carry out their work in each district, but are available if required anywhere in the unit as a whole. The medical director maintains office hours in the mornings and alternates the afternoons as required for various routine health work.

The population is roughly divided into urban and rural centres. The urban population comprises, to a large extent, persons living in the suburbs and working in the city or elsewhere. The rural population lives mostly on small farms, dairy farms or market gardens. During the summer months bathing beaches and camps are in operation along the rivers, providing their own particular health problems.

Accurate recording of all work carried out by the staff is an essential in the unit. Daily records are kept of infectious diseases and routine work, and are completed monthly for presentation to the Health Board. The monthly records are also entered on special forms showing the work, month by month, until, at the end of the year the total is immediately available. In this way we can also compare infectious diseases or unit activities with the same month in previous years, or the totals up to the end of any current month of the year.

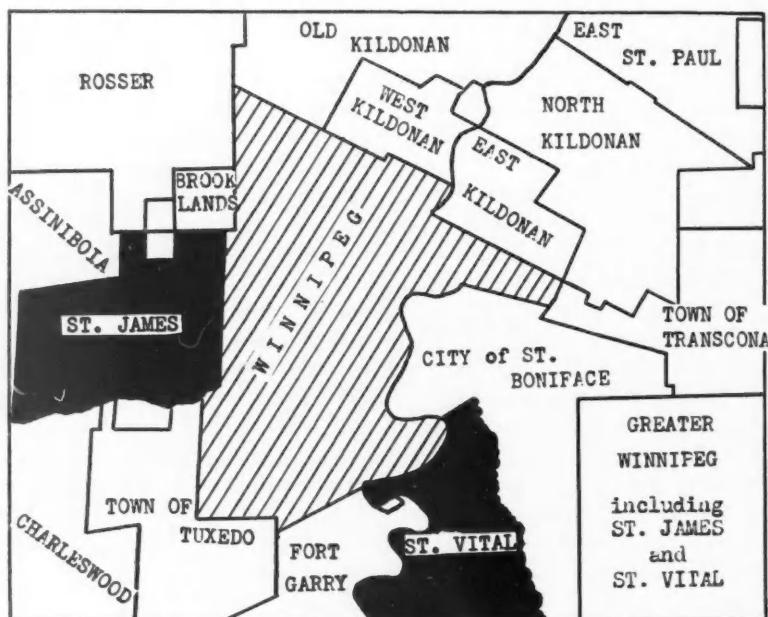
*Presented at the twenty-ninth annual meeting of the Canadian Public Health Association, Winnipeg, Man., September 1940.

†On leave of absence for the duration of the war.

Editorial note: The St. James-St. Vital Health Unit won the first award in the 1939 Canadian Rural Health Conservation Contest, conducted by the Canadian Public Health Association in cooperation with the American Public Health Association and financed by the W. K. Kellogg Foundation of Battle Creek, Michigan. In the 1940 Contest, in which the awards were made according to geographical divisions, the Unit received one of the two equal awards in the Western Division.

Public Health Education

It has become increasingly apparent in the last few years, particularly as a result of the depression, that the public must be continuously informed regarding the value of public health services, if they are to be maintained. No opportunity is lost by the members of the staff of the unit to inform the public regarding the work which is being done. A monthly article on current health problems is contributed to the local paper. Bulletins and pamphlets supplied by the Provincial Department of Health and by insurance companies are given out in the



offices and schools. Emphasis has always been laid on the value of immunization work amongst the children. When a case of infectious disease is visited, appropriate literature dealing with the care of the case and the immunization of those exposed to the infection is left with the parents. One of our best educational opportunities is that afforded by the public health nurses in home visits. Full use is made of this at all times.

Nursing Division

For routine work in the unit, one nurse is allotted to each municipality. They visit the various schools in the district on regular days. Classroom inspections of children are carried out and any found suffering from infectious diseases or skin conditions are isolated until they procure a certificate for readmission from the health office. The afternoons are devoted to the visiting of homes

where children have been reported absent from school due to illness, or to homes where infectious disease has been reported. One morning and one afternoon a week are devoted to the dental clinic and the child welfare station. During immunization programs or physical examinations of school children the nurses assist the medical director. Inspections of boarding homes for children are carried out by the nurses and during the past few months this has been extended to homes intending to receive refugee children. Over 400 homes in the unit have been inspected and reported on for this purpose.

Sanitary Division

The inspector in each municipality has charge of sanitation and food control. In each municipality a sanitary survey is made yearly. Particular attention is given to the problems of sanitation in the rural sections. The urban areas are supplied with water from the Greater Winnipeg Water District. This supply is chlorinated and carefully supervised. In some outlying streets not served with sewers or municipal water, wells have been provided to serve groups of houses. These wells are supervised by the municipality, and rigid and frequent inspection is conducted. In the two municipalities there are thirty-three so-called "municipal wells". The residents in the rural area depend on private wells for their supply.

Bacterial examinations of samples from the municipal wells and private wells are made, and wells supplying rural schools are examined at frequent intervals. Where wells are found contaminated, instructions are given regarding the cleaning of the well, sterilization of the water, and the necessary improvements. In some cases wells are condemned and sealed.

According to a survey made in 1939, 90 per cent of all buildings in the two municipalities situated on streets where sewers and water mains have been laid are now connected, and of the remaining 10 per cent half are connected to the water system. During the past few years we have succeeded in having from eighty to one hundred buildings connected each year. Our procedure has been first to send information to the owners, suggesting that this work be carried out. If no reply is received, a formal sixty-day notice to make the necessary connections is sent. If the owner is unable financially to comply with the order, his appeal is considered by the Health Board and an extension of time is granted. No permits for new buildings are issued unless the buildings have sanitary facilities and are to be connected to the services.

All dairies and milk vendors selling milk in the unit are licensed. The dairies are inspected regularly and made to comply with the health regulations. Samples of milk are examined monthly for bacterial count, butter fat, and sediment. All cattle in these municipalities are regularly tuberculin-tested, the district forming part of a "registered area" under the plan for the eradication of bovine tuberculosis conducted by the Department of Agriculture of the Dominion Government. No cattle may be brought into the area without tuberculin testing.

All food-handling establishments, restaurants, and lunch counters are inspected at frequent intervals.

Garbage collection is carried out under private contract in both municipalities, under the supervision of the unit inspectors.

School buildings are inspected during the summer months and recommendations made to the School Boards for improvements in lighting or cleanliness.

Laboratory

The unit is fortunate in having at its disposal the services of the Laboratory of the Provincial Department of Health, located in the City of Winnipeg. In the unit itself, sediment tests of milk are taken monthly. Urinalysis and blood



THE ST. JAMES HEADQUARTERS OF THE UNIT

counts, where required in routine physical examinations, are also carried out in the unit offices. Information concerning the results of the sediment tests of milk, butter-fat determination, and bacteriological counts are presented to the Board at the monthly meeting. This policy we believe contributes toward maintaining a clean and safe milk supply in the municipalities. Seventy-five per cent of the milk supplied to the urban area is pasteurized and the balance is from licensed and inspected dairies.

Control of Communicable Disease

All outbreaks of infectious disease are investigated immediately and appropriate control measures are taken. A member of the staff visits all cases, homes are placarded where necessary, instructions are given regarding the care and prevention of the spread of the disease, and the nurses leave pamphlets dealing with the particular disease. At the termination of quarantine placards are removed and instructions given by the inspectors as to terminal disinfection. In cases where a school child has developed one of the more serious infectious

diseases, the remainder of the children in the classroom are carefully examined and watched.

In the control of tuberculosis, the unit is again fortunate in having at its disposal the services of the Central Chest Clinic, and all suspicious chest cases are referred for examination and X-ray plates if necessary. We try to have all known cases of tuberculosis examined once or twice yearly until discharged officially by the clinic. The nurses make home visits regularly to all known cases and contacts and submit reports. If it is thought advisable, appointments are made at the clinic. Following the examination a report is received with recommendations as to the disposal of the case. In this way new cases are found, and early and old cases are kept under close observation. During the last year 882 high-school students were tuberculin tested. One hundred and eighty-nine or 21 per cent showed a positive reaction and were given an X-ray examination. No case of active tuberculosis was found. This work was conducted in the schools with the co-operation of the travelling chest clinic.

In like manner venereal-disease cases, if not under the care of a private physician, are referred to the Government Clinic. Records are kept of each case. No treatment is carried out in the unit.

Physical Examination of School Children

A permanent health card, supplied by the Provincial Department of Health, is made out for each child on entering school. This card follows the child from room to room throughout school life. Defects found are entered on the card and a sealed report is sent to the parents. This is followed with a home visit by the nurse, in an endeavour to have defects corrected as early in school life as possible. When corrections are obtained they are recorded on the card.

During the last year 1,074 children were examined and 612 were found to have one or more defects. Many of these were minor, such as defective teeth. Forty per cent of the defects were reported as corrected at the end of the year.

Immunization against preventable infectious diseases has been made one of the most important activities of the unit. Parents are urged to follow a regular program for their children and may bring them to the offices any day throughout the year. Immunization programs are carried out in the schools once a year. Parents are encouraged to bring preschool children to the immunization clinic on regular days. A signed consent slip is required for all children. Immunization against diphtheria is conducted in the fall, vaccination against scarlet fever in the winter, and smallpox vaccination in the spring. Immunization against whooping cough has to the present been confined to preschool children brought to the office by parents.

During the summer months the nurses visit all homes where births have been reported during the previous year, to tell parents of our immunization program. In this way we have been getting an increasingly large percentage of the preschool group completely immunized. We have made the basis of our immunization program the active immunization schedule outlined and

recommended by Dr. D. T. Fraser in the October 1939 issue of the CANADIAN PUBLIC HEALTH JOURNAL; namely, age 3-6 months, smallpox vaccine; 6-8 months, whooping cough vaccine; 9-12 months, diphtheria toxoid; 18 months, one dose of whooping cough vaccine (reinforcing); 1-2 years, scarlet fever toxin; 2-4 years, one dose of diphtheria toxoid (reinforcing); and 5-10 years, smallpox vaccine (reinforcing). We have had this schedule mimeographed and copies are given to the parents. Diphtheria cases in the unit have decreased from 28 a year in 1931 to 3 in 1939. A survey of school children last year showed that 85 per cent had received 3 doses of diphtheria toxoid and that 80 per cent had been vaccinated.

Clinics

Child welfare clinics are held weekly with the unit nurse in attendance. Mothers bring their babies for regular weighing and checking. Charts are kept showing the progress of each baby. In St. Vital a school dental clinic is held once a week. The nurse is in attendance and looks after all records and assists the dentist in his work. Cases receiving care in this clinic are all referred by the unit following examination of the children in the schools. Only those whose parents are unable to afford private care are referred to this clinic. During 1939 38 clinics were held and 434 children given dental care.

First-aid treatments are carried out in both offices and a first-aid cabinet is maintained in each school for the use of the nurses or teachers in case of accidents. During the last year 206 treatments were carried out in the schools and 508 in the offices.

Administration of Medical Relief

In 1934 when the municipalities undertook the medical care of relief recipients, the administration of medical relief was placed with the unit. In its operation, patients or their relatives apply at the health office for permission to have their own physician carry out needed treatment. A voucher is issued and a full medical report is kept on file regarding the case. Medical and drug accounts are checked monthly and passed to the individual municipality for payment. The responsibility for the medical relief is municipal, and the finances are kept entirely separate from those of the health unit.

Cost of the Unit

When the unit was formed in 1931 The Rockefeller Foundation contributed 25 per cent of the cost, reducing their contribution yearly until 1934, when the whole cost was assumed by the Provincial Department of Health and the municipalities on an equal basis. The 1940 budget was \$14,000—a per caput expenditure of only 59 cents.

The control of the unit is vested in a board of health of five members, with the medical director acting as secretary. Three members are appointed yearly by the Municipal Councils and two by the Provincial Department of Health. The board meets once a month and receives full reports of the work. The

monthly accounts are passed for payment. Any particular current problems of health are discussed and the policy of the unit decided.

It has been our policy to make these meetings as interesting as possible, and an endeavour is made to have each member realize that the board does not meet merely to pass accounts, but that the health problems that arise are theirs to help solve, and that it is their duty to help safeguard the health of the public they represent during their term of office. We do not hesitate to enlist their support even after they return to private life. I think I can safely say that since its inception the unit has never had a board member who did not take an active interest in the work and leave the board an ardent supporter of public health. A unit that has an active and interested board of health has taken a long step towards success.

Phenothiazine in the Treatment of Enterobiasis

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THE treatment of enterobiasis or pinworm infection has been the subject of extensive studies, especially in the United States National Institute of Health, Washington, D.C. Much work has been done by Wright (1, 2) and his co-workers in an attempt to find an effective method of treatment for enterobiasis.

Various drugs have been tested by these workers and recently they have introduced treatment with gentian violet. Their results have shown that the drug was efficient in about 90 per cent of cases when administered in two courses of treatment over an extended period of time. Unfavourable reactions, however, following treatment with this drug, have been recorded by these authors and by Miller (3), who administered gentian violet to 29 school children in Quebec.

The present tests with phenothiazine were commenced in November, 1940 in the hope of finding a drug for pinworms that would be effective against the parasite and would have no unfavourable reactions in the patient.

Phenothiazine has been extensively used in the last few years as an effective anthelmintic in veterinary parasitology. DeEds (4, 5) and his co-workers demonstrated the effectiveness of phenothiazine as a urinary bactericidal agent and after a series of tests on animals used the drug in the treatment of patients with acute and chronic infections of the urinary tract. Observations have been made on the effect of phenothiazine in experimental trichinosis (6, 7) but no evidence that the drug is of any appreciable value has been found.

Manson-Bahr (8) was the first to report his results on the use of phenothiazine for parasitic infections in man. His therapeutic trials on pinworm infections had given good and permanent results. The number of persons treated, however, by Manson-Bahr was small, namely, 6 children and 3 adults.

The present study records the results of administering phenothiazine to 89 children and nine adults. The children were from the I.O.D.E. Hospital for Convalescent Children, the Thistletown Hospital, the children living in foster-homes under the care of the Infants' Home and the Children's Aid Society of Toronto; a few children were from private homes. Eight of the adults treated were among parents of the infected children.

Procedure and Results

The diagnosis of pinworm infections and the post-treatment examinations were made by the American NIH swab method (9). The swabs were taken in each instance by the same person before and after treatment in order to ensure uniformity of procedure. The mothers took the swabs from the children under their care in foster-homes and private homes. Those

in the hospitals were taken by the members of the nursing staff and by the author. The diagnosis was made by taking five or seven swabs of each person. The efficiency of the treatment was determined by ten swabs of the first 40 children and 6 adults, and, in order to shorten the procedure, seven swabs were taken of the remaining 49 children and 3 adults. Those who were given a second course of treatment were examined similarly by the swab method. The ten post-treatment swabs were taken in two periods: five were taken on five mornings immediately after the treatment was completed, and the other five were taken after a week's interval. The seven swabs were taken on seven consecutive mornings, starting one week after the treatment was completed. It may be suggested that seven post-treatment swabs should be sufficient to determine the results of the treatment.

The children were given recrystallized phenothiazine, mixed as a rule in porridge or cereals, on four to six consecutive mornings. In a few instances the procedure was extended over a longer period of time. At the beginning of these experiments a few patients were given the drug in gelatine capsules. It soon appeared, however, that the children had difficulty in swallowing the capsules and, therefore, it was mixed in the food. Most of the adults took phenothiazine with a drink of water or in gelatine capsules.

The dosage used at the beginning of this trial was 2.5 grm. but it was soon determined that this was insufficient. The dosage was then increased to the following: 4 to 5 grm. for children from 2 to 5 years of age, 6 grm. for those from 6 to 8 years of age, and 8 grm. for those 9 years and over. No laxative was given during the treatment. In contrast to our doses those used by Manson-Bahr (8) are as follows: 2 grm. daily for seven days for children under 8 years of age and half of this dose for children under 4. The dose for adults was from 4 to 8 grm. daily for seven to ten days. A drachm of sodium sulphate was given after each dose of phenothiazine. One child and two adults needed a second treatment.

Of 89 children treated, 76 or 86 per cent were cured by the first course of treatment and in 13 the presence of pinworm infection was still demonstrable. Table I gives the doses administered to the 76 children who were cured by the first course of treatment.

TABLE I
DOSES OF PHENOTHIAZINE ADMINISTERED TO 76 CHILDREN
CURED BY THE FIRST COURSE OF TREATMENT

Age 2-5 years		Age 6-8 years		Age 9-14 years	
Total dose in grammes	Number of children	Total dose in grammes	Number of children	Total dose in grammes	Number of children
2.5	2	2.5	1	5.0	1
3.0	4	3.0	1	6.0	7
4.0	4	5.0	2	7.5	1
5.0	5	6.0	27	8.0	21

The table shows the number of children in different age-groups treated with various doses of phenothiazine. In the age-group 2 to 5 years, 15 children were treated with a dosage of from 2.5 to 5 grm. (0.5 to 1 grm. daily). In the age-group 6 to 8 years, most of the 31 children were given 6 grm. and 4 were cured with 2.5 to 5 grm. (0.5 to 1 grm. daily). In the age-group 9 to 14 years, most of the 30 children were given a dosage of from 5 to 8 grm. (1 to 2 grm. daily).

A second treatment was given to the 13 children who remained positive after the first treatment. These are listed in table II.

TABLE II
RESULTS OF TREATMENT OF 13 CHILDREN WHO WERE
POSITIVE AFTER THE FIRST COURSE OF TREATMENT

Number	Age	Sex	First dosage in grammes	Second dosage in grammes	Total dosage in grammes	Results of post-treatment swab examinations
1	2	F	2.5	5.0	7.5	Negative
2	2	F	3.0	1.5	4.5	"
3	2	M	3.0	1.5	4.5	"
4	3	M	2.5	2.0	4.5	"
5	4	F	5.0	2.0	7.0	No swabs taken
6	4	M	5.0	2.0	7.0	Positive
7	5	F	3.0	1.5	4.5	Negative
8	5	F	3.0	1.5	4.5	"
9	5	M	5.0	2.0	7.0	No swabs taken
10	9	F	6.0	3.0	9.0	Negative
11	10	M	8.0	2.0	10.0	"
12	11	F	6.0	3.0	9.0	"
13	12	M	7.5	5.0	12.5	"

Table II shows that 9 children out of the 13 who remained positive after the first course of treatment belonged to the age-group 2 to 5 years and 4 were from 9 to 13 years of age. None of the 31 children in the age-group 6 to 8 years required a second course of treatment. The 13 children were given a second course of treatment about two to three weeks after the completion of the first. All became negative after the second course of treatment except one 4-year-old boy who was still positive after being given 7 grm. For two children no post-treatment swabs have been received.

The results of treatment of nine adults are shown in Table III.

One adult female, after being given 5 grm. of phenothiazine, 1 grm. daily, still had the infection, but after an additional dose of 1 grm. daily for three days her swabs were negative.

TABLE III
THE RESULTS OF TREATMENT OF 9 ADULTS WITH PHENOTHIAZINE

Number of patients	Dosage in grammes	Results of post-treatment swab examinations
1	5	Positive
1	5	Negative
1	6	"
6	10	"

DISCUSSION

The above experiments have shown, as have those of Manson-Bahr (8), that phenothiazine appears to be an efficient anthelmintic for the treatment of pinworm infections. However, the results of the present study have shown that in most cases a much smaller dosage than that used by Manson-Bahr appears to be effective. It may be suggested, therefore, that smaller doses should be used and, if necessary, repeated after a period of rest. There also remains the possibility that the first treatment may have been successful but after a period of time a reinfection may have taken place, especially in cases of familial infections.

DeEds and his co-workers (5) made blood counts from 19 patients whom they treated with phenothiazine for urinary-tract infections. Three patients developed a definite secondary anaemia after a dosage of 22.4, 28.1 and 19.9 grm. respectively. Two other patients who received a dosage of 24.6 and 43.0 grm. showed no ill effect; one of these showed an increase in erythrocytes and haemoglobin. The most severe anaemia developed in a patient who received a dosage of 19.9 grm. These authors advise that the maximum dosage of phenothiazine should not exceed 15 grm. without a rest period. They used an average daily dose of 1.33 grm. (range 0.8 to 3.5 grm.) during an average period of 7.4 days (range 2 to 21 days), the average dosage being 9.99 grm. (range 3.51 to 42.9 grm.). The average dosage used by DeEds and his co-workers is equal to the dosage used in the present trials for most of the adults.

Manson-Bahr states that it is more difficult to eradicate pinworms from adults than from children. This is contrary to our findings, though the number of adults treated is too small to make a definite statement. Our experience in the past three years has shown that an adult could easily lose a slight and early infection without the drug, provided that strict hygienic measures were applied to prevent reinfection. In the present trials the most difficult subjects to treat were children from 2 to 5 years of age. It is not probable that a child would lose the parasites without medication. In 1940 (10) a report was published on a survey of enterobiasis in children in Toronto hospitals. Over 800 children were examined during the years 1938 and 1939. It has been possible to re-examine 13 of these children after intervals of one to three years. In 9 chil-

dren the infection had persisted; 3 children, negative in 1938, had contracted the infection; the swabs of one child were negative in 1938 and 1941. It is of interest to mention that 2 of these children had been in the Thistletown Hospital three years and nine months and two years and seven months respectively and under strict hygienic measures they had not lost the infection.

No untreated controls were followed during the trial of the phenothiazine except in the case of 2 children in the Thistletown Hospital. One 4-year-old and another 6-year-old were treated and 2 others of the same ages were left untreated except for the taking of swabs. The 4-year-old control was discharged before the procedure was completed. The swabs of the 6-year-old control were positive on each of the examinations. Later the child was successfully treated with a dosage of 6 grm. of phenothiazine.

As mentioned above, no laxative was given during the administration of phenothiazine and it is not yet known whether it is advisable to administer one. Taylor and Sanderson (11) propose the theory that it may be necessary to obtain a certain concentration of phenothiazine for some time in the alimentary tract in order to obtain the maximum effect of the drug. If that be the case, it would be undesirable to give a laxative during the treatment. Our trials with smaller doses than those administered by Manson-Bahr seem to support the view that the use of a laxative during the treatment is not advisable. Of 9 patients treated by Manson-Bahr, 3 required a second course of treatment. In our series of 98 patients treated with noticeably smaller doses and without laxatives, 14 required a second course of treatment. Further trials may show whether or not a slightly larger dosage for children under 6 and over 9 years of age may be as efficient as was the dosage of 1 grm. daily for six days for the children from 6 to 8 years of age. Adults apparently require no larger dosage than 1.5 to 2 grm. daily for five to six days.

No complaints were received of any adverse effect of phenothiazine on the patients. On the contrary, in several instances statements have been made to the effect that the children have improved in general health after the treatment.

From this preliminary trial the conclusion may be drawn that phenothiazine is of definite value in the treatment of enterobiasis. It is easily administered without laxatives, enemas, or fasting; it is effective in eliminating pinworms and it has apparently no adverse reaction in the patient if administered in moderate doses.

SUMMARY

Phenothiazine was administered to 89 children and 9 adults infected with pinworms. The ages of the children were as follows: 24 children from 2 to 5 years of age, 31 children from 6 to 8 years, and 34 from 9 to 14 years of age.

Adults received from 5 to 10 grm. of phenothiazine and children from 2.5 to 8 grm. Eight adults and 76 children were cured by the first course of treatment. The swabs of one adult and 13 children remained positive after the first course of treatment. Nine of the 13 children were from 2 to 5 years of age and 4 were from 9 to 14 years of age. All responded to the second course

of treatment except a 4-year-old child whose swabs were still positive after the second course of treatment; from 2 children no post-treatment swabs were taken.

ACKNOWLEDGMENTS

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REFERENCES

- (1) Wright, W. H., Brady, F. J and Bozicevich, J.: Studies on oxyuriasis. VIII. A preliminary note on therapy with gentian violet. *Proc. Helm. Soc., Washington*, 1938, 5:5.
- (2) Wright, W. H. and Brady, F. J.: Studies on oxyuriasis. XII. The efficacy of gentian violet in the treatment of pinworm infestation. *J.A.M.A.*, 1940, 114:861.
- (3) Miller, M. J.: Studies of pinworm infection. II. Tests with gentian violet in the treatment of pinworm infection. *Canad. Med. Assoc. J.*, 1940, 43:455.
- (4) Thomas, J. O., DeEds, F. and Eddy, P. W.: Studies on phenothiazine. VII. The bactericidal properties of urine after oral administration of phenothiazine. *J. Pharmacol. & Exper. Therap.*, 1938, 64:280.
- (5) DeEds, F., Stockton, A. B. and Thomas, J. O.: Studies on phenothiazine. VIII. Antiseptic value of phenothiazine in urinary tract infections. *J. Pharmacol. & Exper. Therap.*, 1939, 65:353.
- (6) McNaught, J. B., Beard, R. R. and DeEds, F.: Effects of sulfanilamide, phenothiazine and thionol in experimental trichinosis. *Proc. Soc. Exper. Biol. & Med.*, 1939, 41:17.
- (7) McNaught, J. B., Beard, R. R. and DeEds, F.: Further observations of phenothiazine in experimental trichinosis. *Proc. Soc. Exper. Biol. & Med.*, 1939, 41:645.
- (8) Manson-Bahr, P.: Phenothiazine as an anthelmintic in threadworm and roundworm infections. *Lancet*, 1940, 2:808.
- (9) Hall, M. C.: Studies of oxyuriasis. I. Types of anal swabs and scrapers with a description of an improved type of swab. *Am. J. Trop. Med.*, 1937, 17:445.
- (10) Kuitunen-Ekbaum, E.: Intestinal parasites in children in Toronto. *Am. J. Dis. Child.*, 1940, 60:518.
- (11) Taylor, E. L. and Sanderson, K. M.: Phenothiazine—a remarkably efficient anthelmintic. *Vet. Rec.*, 1940, 52:635.

Single Colony Isolation of Anaerobes*

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IN dealing with anaerobes, it is common experience that pure cultures are difficult to obtain. Ordinary plating methods, suitable for use with aerobic organisms, frequently fail when applied to anaerobes. Some organisms (1) such as *Cl. tetani*, when grown on an agar plate, do not always form discrete colonies but spread as an extremely fine film which at times can hardly be seen; hence could quite easily be picked off with another more distinct anaerobic colony. Repeated platings, differential heatings, dilution methods, shake cultures and animal inoculations may be successful if practised with skill and care. Probably the most reliable methods of obtaining pure cultures of anaerobes are those employing single cell techniques (such as that of Barber) which are difficult, tedious, and can be carried out only by an expert who has devoted considerable time to mastering the details.

Ward and Rudd (2), whilst studying colonial morphology, developed a technique for the separation of single colonies of haemolytic streptococci. They found that when an inoculum containing one to ten organisms was transferred to test tubes containing a semi-solid agar medium individual colonies were formed which were distinct and characteristic. These could be picked out by means of a Pasteur pipette without unduly disturbing the medium or the other colonies.

Brewer (3), working on anaerobes, found that by the addition of sodium thioglycollate to ordinary media he could grow anaerobes under aerobic conditions.

Ward and Rudd's work suggested the possibility of using a similar technique for the isolation and pure culture study of anaerobes. By combining these workers' technique with Brewer's use of sodium thioglycollate, a method was developed whereby single colonies of anaerobes could be obtained in a manner similar to the isolation of streptococci.

In our experience the following procedure has been found to be satisfactory:

PROCEDURE

1. Medium:

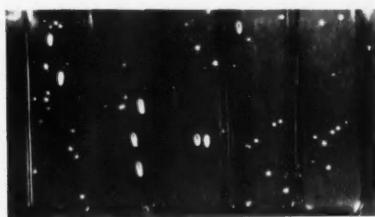
Proteose peptone	10.0 gm.
Tryptone	10.0 "
Sod. thioglycollate	1.0 "
Agar	3.0 "
Distilled water	1000.0 cc.

Adjust the reaction to pH 7.4, dispense in tubes in 10 cc. amounts and autoclave at 15 pounds for 20 minutes.

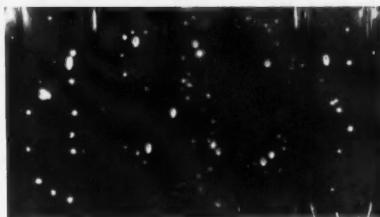
*Presented as a demonstration at the ninth annual Christmas meeting of the Laboratory Section, Canadian Public Health Association, Toronto, December 16-17, 1940.

2. Technique:

Using a 1-mm. platinum loop, one loopful of an 18-24 hour broth culture is touched gently on the inside of the culture tube, so that only the barest film of culture remains on the loop. This inoculum is then transferred to a tube containing 5 cc. of sterile broth (type of broth is immaterial) and thoroughly mixed. The loop is flamed and a loopful of the inoculated broth is transferred to a tube of the semi-solid medium, which has been heated in boiling water to displace oxygen and cooled to 45°C. immediately before use. The tube should then be rotated to distribute the organisms evenly. It is then placed in the incubator under ordinary aerobic conditions.



Mixture of *Cl. tetani* and *Cl. welchii*,
December 7, 1940.

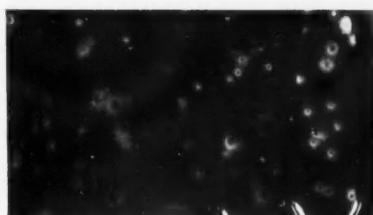


Mixture of *Cl. tetani* and *Cl. welchii*,
December 7, 1940.

Cl. welchii—Elongated colonies.

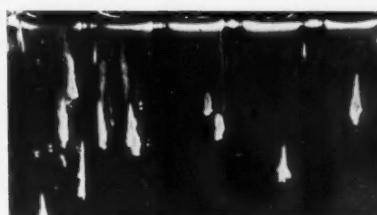
Cl. tetani—Small, circular hazy colonies.

Agar concentration of the above medium, 0.3 per cent.



Cl. botulinum overnight at 28°C.,
5 hours at 37°C.

Agar concentration of the medium,
0.3 per cent.



Cl. welchii, December 12, 1940.

Agar concentration of the medium
reduced to 0.25 per cent.

The incubation period will vary with the organism under study. For *Cl. welchii* the best incubation period was found to be overnight (16-18 hours) at 37°C. For all other anaerobes studied it was found best to leave the cultures at room temperature (approximately 22°C.) overnight and place in the 37°C. incubator the following morning. The development of colonies is then watched closely (up to 10 hours), the cultures being removed from the incubator when the colonies have reached a suitable size. Prolonged incubation at 37°C. may result in confluent growth, making it impossible to obtain single colonies.

In the case of mixtures of anaerobes and aerobes it has been found possible to eliminate the latter by (a) preliminary anaerobic cultivation of the mixture

in fluid medium, and by (b) dilution of the resultant growth to the point where aerobic organisms are eliminated in the majority of tubes planted. The following procedure for dealing with contaminated material has been tried and has proved successful:

1. The product on test, or a representative portion, is inoculated into 250 cc. of Brewer's thioglycollate medium (without dextrose) which has been previously heated in boiling water, and cooled to 45°C.
2. The inoculated flask is incubated anaerobically in a McIntosh and Fildes' jar for 24 hours at 37°C.
3. From this at least 20 tubes, containing semi-solid medium, are inoculated using the previously described method. These are incubated aerobically.

Using the above technique and medium, separate colonies were successfully obtained from each of the following cultures of anaerobes: *Cl. botulinum*, *Cl. chauvei*, *Cl. fallax*, *Cl. histolyticum*, *Cl. novyi*, *Cl. putrificum*, *Cl. sordelli*, *Cl. sporogenes*, *Cl. tertium*, *Cl. tetani*, *Cl. tetanoides*, *Vibrio septique*, and *Cl. welchii*.

The accompanying photographs illustrate various colony forms and also how mixed cultures can be separated.

DISCUSSION

The simplicity and ease of carrying out the above procedure greatly reduced the difficulties of obtaining pure cultures of anaerobes. With this technique and a McIntosh and Fildes' jar, it was found possible to eliminate aerobes entirely, and to isolate pure cultures of pathogenic *Cl. welchii* in less than 48 hours from test samples. Furthermore, several cultures of anaerobes, formerly believed to be pure cultures, were found to be contaminated with other anaerobic bacteria.

CONCLUSIONS

A simple and quick method of isolating anaerobes is described. Special technique and apparatus are not essential for successful results.

ACKNOWLEDGMENTS

Acknowledgment is due to Dr. E. T. Bynoe and to Mr. J. Gibbard for valuable assistance, advice, and helpful criticism.

REFERENCES

1. Medical Research Council: A System of Bacteriology, 1931, volume 9.
2. Ward, H. K., and Rudd, G. V.: Studies on Haemolytic Streptococci from Human Sources. Australian J. Exper. Biol. & M. Sc., 1939, 17: 77-79.
3. Brewer, J. H.: A Clear Liquid Medium for the Aerobic Cultivation of Anaerobes. J. Bact., 1940, 39: 10.
4. Fildes, P., and McIntosh, J.: An Improved Form of McIntosh and Fildes' Anaerobic Jar. Brit. J. Exper. Path., 1921, 2: 153.

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THE NEED FOR ACTION IN NUTRITION

THE May issue of this JOURNAL contained four reports of nutritional surveys in Canadian cities; the results indicated a wide-spread prevalence of under-nutrition among low-income families and showed that such families, and even ones more comfortably situated, lacked essential minerals and vitamins. It is known, however, that Canadian diets are sufficiently good to prevent frank deficiency diseases like beri beri, pellagra and scurvy. At least two-fifths of the Canadian population are now living on food supplies which, in nutritive value, lie between the low level required to produce deficiency diseases and the high level necessary for health. Continued subsistence on such mediocre diets causes lowered vitality, decreased working ability and subnormal resistance to infection.

The causes of malnutrition are two: a lack of nutritional information and financial inability of some families to purchase proper food supplies. It is not due to a scarcity of foodstuffs since supplies are available, or could be made so, within this country to give all Canadians an adequate diet. Certain foodstuffs are needed for Great Britain but others can be furnished in increasing amounts. The recent surveys have proved the urgent need for education, not only of the basic principles of nutrition, but concerning cooking and economical purchasing. A nation-wide effort under the auspices of the Dominion Government and with the cooperation of all agencies interested in nutrition is required, not a year hence, but now.

Advancement of an argument that emphasis should be placed upon the war effort and that a nutrition campaign is not part of the war effort and is not essential at present would be entirely fallacious. The preservation and improvement of the health of every Canadian is a vital part of the war effort; health cannot be maintained without adequate nutrition. A shortage of man-power is developing and the safeguarding of human assets is an urgent necessity. This was realized in Great Britain in the fall of 1939. The report of one special camp operated by the British Government shows that provision of proper meals, light exercise and a healthful environment caused 729 out of 834 men who had been rejected for military service to become fit for front-line duties. The percentage

of men who have been rejected in Canada because of conditions caused by faulty nutrition is not known; in the United States it has been the most important cause of rejection. American authorities are setting up rehabilitation camps. Should Canada lag behind in salvaging badly needed men?

Scientific studies at Yale University have shown that working efficiency is improved by proper nutrition. This is a mechanized war and production on a vast scale is required. Even if men are not needed for the armed forces they are essential for industry. Everything possible should be done to improve working efficiency and to prevent illness among industrial workers. Plants operating cafeterias should see to it that nourishing meals are served. Education of workers to eat hearty, wholesome breakfasts would help to reduce mid-morning fatigue.

The Minister of Pensions and National Health stated in a recent broadcast that more babies under one year of age died in Canada in four years of peace than there were men killed in action during four years in the last war. The studies of Ebbs in Toronto have shown that maternal and infant mortality can be reduced by giving expectant mothers adequate diets.

Nutrition is an important factor in the maintenance of public health. The preservation and improvement of the health of Canadians should be regarded as an essential part of the war effort to make men available for the armed services, to accelerate industrial production and to prevent the loss of time through illness. Extensive data prove that malnutrition is wide-spread and can be partially prevented by education. There is an urgent need for a national program to improve nutrition now. The success of such a program requires the active cooperation of every Canadian woman and that can be secured if it is made clear that it is the patriotic duty of every housewife to see that her family is properly fed.

THE ASSOCIATION'S WORK DURING 1940-41

(Part I)

REPORT OF THE HONORARY SECRETARY (1940-1941)

FOR many years it was the duty of the Honorary Secretary, in preparing the annual review of the Association's work, to give considerable space to the needs of the Association if an adequate program was to be carried forward. Those days, in so far as the program of the Association is concerned, are fortunately over; and although our financial responsibilities continue to grow, there now is no room in the annual report for unwarranted optimism or unjustified pessimism as to the Association's past, present, or future. Even an abbreviated statement of the Association's activities and accomplishments during the year takes up all the space available.

The twenty-ninth annual meeting was held in Winnipeg September 19th to 21st, in conjunction with the annual meeting of the Manitoba Medical Association. The meeting was preceded by the biennial refresher course for the nursing staff of the Department of Health and Public Welfare of Manitoba. The registration was appreciably higher than anticipated and both the academic and social sessions were of high standard. Particularly worthy of note was the hospitality extended by the province, through the Minister of Health and Public Welfare, the Honourable I. B. Griffiths.

The presentation of the first award in the 1939 Canadian Health Conservation Contest was made to the Director of the St. James-St. Vital Health Unit, Dr. I. M. Cleghorn; this being the first occasion when it had been possible for any of the other contenders to wrest the laurels from the Province of Quebec.

The privilege of honouring two distinguished public health leaders from Western Canada, namely, E. W. Montgomery, M.A., M.D., C.M., LL.D., F.A.C.P., Professor Emeritus in Medicine, University of Manitoba, and formerly Minister of Health and Public Welfare of Manitoba, and the Honourable J. M. Uhrich, Ph.C., M.D., Minister of Public Health and Provincial Secretary, Province of Saskatchewan, and Honorary President of the Canadian Public Health Association, to whom Honorary Life Membership was awarded, was appreciated by the entire membership present.

The fourth annual Rural Health Conservation Contest was held during the year with more than thirty units enrolled. Those counties which were adjudged as eligible for place on the National Health Honour Roll were as follows:

Eastern Division:

Terrebonne County Health Unit, St. Jerome, Quebec.

St. Jean-Iberville-Laprairie-Napierville Health Unit, St. Jean, Quebec.

Nicolet County Health Unit, Nicolet, Quebec.

Western Division:

Peace River Health Unit, Pouc Coupé, B.C.

St. James-St. Vital Health Unit, Manitoba.

The Canadian Rural Health Conservation Contest has, since its inception, been jointly conducted by the Canadian Public Health Association and the American Public Health Association, with the financial support of the W. K. Kellogg Foundation of Battle Creek, Michigan. The Association is duly appreciative of the very generous treatment accorded it by both these organizations.

The response of the health units eligible for participation in the Rural Contest was such that the Association felt that a similar opportunity for self-evaluation might rightly be extended to Canadian cities. A careful canvass of the medical officers of many cities, both large and small, revealed that such a contest would be welcomed. With the cooperation of the American Public Health Association and the financial support of the Metropolitan Life Insurance Company, the first Canadian City Health Conservation Contest was announced last summer. Those cities with a population of 10,000 and over were considered as eligible and more than twenty cities participated in this first contest. Those cities which, as the result of having achieved the necessary rating, were placed on the National Health Honour Roll were as follows:

Group 1. Cities over 100,000 population with full-time services:

Windsor, Ontario.
Hamilton, Ontario.

Group 2. Cities under 100,000 with a full-time medical officer:

Saint John, New Brunswick.
London, Ontario.

Group 3. Cities under 100,000 with a part-time medical officer:

St. Catharines, Ontario.

In addition to major awards in both Contests, listed above, certificates of commendation indicating "commendable attainment and improvements in public health" were issued to the following cities: Lachine, Que., Montreal, Que., Three Rivers, Que., Kingston, Ont., Ottawa, Ont., and Vancouver, B.C.; and to the following county health units in Quebec: St. Hyacinthe-Rouville, Laviolette, and St. Maurice.

Much of the success of this first urban contest can be accorded to Dr. James Wallace, formerly of the field staff of the American Public Health Association, who was most generous of both time and effort in promoting the contest.

The sixth annual examinations for the *Certificate in Sanitary Inspection (Canada)* were held in seven provincial centres on September 11th, 12th and 13th. Twenty-nine candidates presented themselves for examination. Since the introduction of these examinations in 1935, 202 candidates have obtained the Canadian certificate. With the general acceptance of the principle of special training for sanitary officers, it has been necessary to advance the requirements in respect to preliminary education. The fifth edition of "Manual for Sanitary Inspectors" was issued in November, 1940, and since that time 130 copies have been sold. More than 400 copies of the first four editions have been distributed.

"The Development of Public Health in Canada", a 184-page outline of the

history and development of public health in the provinces, with an outline of the present organization of the Federal Department of Pensions and National Health, has been issued by the Association and has been most favourably received.

The average circulation (audited) of the JOURNAL for the twelve months ended December 31, 1940, was 3,374, an increase of 116 a month over 1939. The membership in the Association increased from 2,800 to 2,900. A special "Safe Milk" number was published in April, 1941. The Milk Committee which sponsored this issue was prompted largely by one motive, namely, the increased consumption of safe milk. The number emphasized the nutritional value of milk and supplied evidence that there is an urgent need for increasing the milk consumption, particularly in low-income families. Problems arising from the handling of milk and dairy products and suggested control measures are admirably treated in this number. Included also was the Committee's survey of milk control, including the extent of pasteurization, in municipalities of two thousand population and over in Canada. The standard milk ordinance, which was prepared last year, has been submitted to the Provincial Departments of Health and to other authorities concerned, and will be referred shortly, in revised form, to the Dominion Council of Health for its consideration.

The ninth annual Christmas Meeting of the Laboratory Section was held in Toronto on December 16th and 17th. One hundred members were present, including representatives of the Department of Pensions and National Health, Department of National Defence, and the Department of Agriculture, Ottawa; the Departments of Health of British Columbia, Alberta, Manitoba, Ontario, Quebec, and Nova Scotia; the University of British Columbia, the University of Alberta, the University of Saskatchewan, the University of Western Ontario, the University of Toronto, Queen's University, the University of Montreal, McGill University, and the University of Pennsylvania; the Mountain Sanatorium, Hamilton, the Hospital For Sick Children, Toronto, the Toronto General Hospital, the Toronto Military Hospital, the Royal Victoria Hospital, Montreal; the Ontario Research Foundation and the Ontario Veterinary College; and the New York State Agricultural Experiment Station. Twenty-nine papers were presented during the two days. One afternoon was given over to the presentation of demonstrations of laboratory methods. The attendance at the annual dinner was the largest in the history of the Christmas meetings, almost all the registered members being present. The speakers were Dr. M. V. Veldee, Chief of the Division of Biologics Control of the National Institute of Health, Washington, and Dr. Ronald Hare, Research Associate in the Connaught Laboratories, University of Toronto.

The Vital Statistics Section is continuing its efforts to foster in all of the medical schools a better appreciation of the value of accurate mortality and morbidity data. A revised edition of the special exercise was made available this year. It is the hope of those members of the Association most closely concerned with this essential aspect of public health and preventive medicine that in this way it will be possible to inculcate into the student of medicine an

acceptance of the principle that medical statistics form the foundation upon which all public health progress is built.

The Committee on Full-time Health Services, which was formed in 1939, is completing its study of the data as relating to 1938 concerning all municipalities in Canada having the services of a full-time medical officer of health. Although the data obtained present clearly the health organization of the communities, information concerning appropriations for public health, hospitals, and welfare services has been difficult to interpret, requiring an extensive correspondence with the various municipal departments concerned. A similar survey for the year 1940 is planned and the forms will be sent shortly to all municipalities having a full-time medical officer of health. The conduct of such a survey every two years will provide the essential information on which plans may be made for the extension of full-time health services through the cooperation of Provincial and Federal authorities.

The Public Health Nursing Section's Committee on Minimum Qualifications for Employment of Public Health Nurses met regularly during the fall and winter and has prepared "Recommendations regarding Minimum Requirements for Employment in the Field of Public Health Nursing for the Years 1941-1946". These will be discussed at this year's annual meeting.

The Section of Public Health Education has conducted a survey of the health education programs in Canadian teacher-training institutions in an effort to determine what preparation the teacher has for this task, and has undertaken to contribute a monthly department of the JOURNAL, beginning in June, 1941.

The Canadian Life Insurance Officers Association again extended to the Association the financial support which has made possible the continued adequate functioning of this organization. The very best thanks of the officers and members are gratefully extended to the Canadian Life Insurance Officers Association for this continued generous support.

It is with the regret of all those who knew them, or who had been influenced by their leadership in the field of public health, that we add to the long list of other outstanding contributors to the physical betterment of the people of this country who have passed on, the names of John W. S. McCullough, formerly Chief Health Officer for Ontario, and Alphonse Lessard, who for many years occupied a comparable post in the adjoining Province of Quebec. Nothing can be added here to what already has been said by their friends, admirers and contemporaries.

The appreciation of the armed forces of the need for specially qualified public health personnel has compelled the resignation of Dr. A. L. McKay as Honorary Treasurer, and Dr. A. Hardisty Sellers as Associate Secretary. No one can more appreciatively express the extent of their contribution than the Honorary Secretary.

Despite the added responsibilities which of necessity accompanied the acceptance by Dr. R. D. Defries of the post of Director of the Connaught Laboratories and School of Hygiene, University of Toronto, there has been no diminution of his enthusiasm in the affairs of this Association. Only those who

have been intimately associated with the affairs of the Canadian Public Health Association in the last twenty years can be fully aware of the extent of the contribution made to its successful functioning by Dr. Defries.

In conclusion, I would like to again express, on behalf of myself and the Association as a whole, our thanks to Mr. Robert Randall, the Executive Assistant, for his untiring interest on the Association's behalf.

May 31, 1941.

J. T. PHAIR, *Honorary Secretary.*

REPORT OF THE HONORARY TREASURER

IN presenting the report of the Honorary Treasurer for the fiscal year of the Association, January 1—December 31, 1940, I am reporting the work of the former Honorary Treasurer, Dr. A. L. McKay. On assuming a new appointment in the Department of Health of Ontario which necessitated his removal from Toronto, Dr. McKay found it necessary to be relieved of his duties as Honorary Treasurer. The best wishes of the Association go to Dr. McKay, who is now serving with His Majesty's Forces in the Royal Canadian Navy, the branch of the service in which he saw active service in the last war.

As outlined by the Honorary Secretary, Dr. J. T. Phair, the thirtieth year of the Association's existence was marked by a further extension of activities, notably the introduction of the Canadian City Health Conservation Contest, the publication of **THE DEVELOPMENT OF PUBLIC HEALTH IN CANADA**, the revision of the **MANUAL FOR SANITARY INSPECTORS**, and the work of the Milk Committee and the Committee on Full-Time Health Services. The planning of the twenty-ninth annual meeting, which was held in Winnipeg in September, was conducted in most difficult circumstances, as one recalls the progress of the war last summer. The Christmas meeting of the Laboratory Section also was planned and conducted under difficult conditions. The high standard which has characterized the **CANADIAN PUBLIC HEALTH JOURNAL** was maintained during the twelve issues, but in view of increased printing and mailing costs its publication added to the financial problems of the year. It is not surprising therefore that the expenditures for the year exceeded considerably the income. The expenditures amounted to \$12,094.97 and the income to \$10,691.41, thus incurring a deficit of \$1,403.56. The statement of revenue and expenditure, and the balance sheet of the Association at December 31, 1940, are appended.

The income from advertising amounted to \$3,481.50 and from subscriptions for the **JOURNAL** to \$3,119.37. These amounts are approximately the same as the figures for last year. Fees received from candidates for the annual examinations in sanitary inspection amounted to \$435.00. The grant of \$3,500.00 made by the Canadian Life Insurance Officers Association is evidence of the approval of that important body of the work of the Canadian Public Health Association. Further reference to this grant will be made later in this report.

The members of the Executive Committee are continuing to study ways of

enlarging the financial resources of the Association. It is hoped that during the coming months a substantial addition to the annual income of the Association may be realized from sustaining memberships. This type of membership is open to institutions and companies having special interests in the public health field and makes it possible for them to express their interest in tangible form.

As previously stated, the expenditures for the year amounted to \$12,094.97. The cost of printing and distributing the JOURNAL was \$6,600.43, in contrast with \$6,049.51 in 1939, an increase of \$650.92. A larger number of copies were printed and distributed than in 1939. The publication of *THE DEVELOPMENT OF PUBLIC HEALTH IN CANADA*, a volume of one hundred and eighty-four pages, was responsible for part of the deficit. An edition of five hundred copies was printed and revenue will be received from the sale of these during the coming year. The revision of the *MANUAL FOR SANITARY INSPECTORS* and its publication constituted another expenditure for printing and publishing. The twenty-ninth annual meeting, held in Winnipeg in September, entailed a net expenditure on the part of the Association amounting to \$705.37. Because the meeting was held jointly with the Manitoba Medical Association, it was not possible to charge the usual registration fee. Moreover, it was not feasible to have commercial exhibits. In these circumstances the holding of an annual meeting for such a low expenditure was indeed an achievement and it was accomplished only by the strictest economy. Dr. McKay pointed out last year that the Association cannot, on its present income, successfully carry forward its work unless the annual meeting can be so conducted that it does not call for financial expenditures by the Association. The registration fee is of great assistance. Such a fee is recognized as essential by the American Public Health Association and other national organizations. The fee of \$1.00 which has been in force in the Canadian Public Health Association is a minimum. It is earnestly hoped that, as the meetings are held in turn in the various provinces, the Provincial Governments concerned will favourably consider making a grant for the conduct of the meeting. This action has been taken when the meetings were held in Halifax, Montreal, Ottawa, and other cities. The Association is deeply grateful to the Ministry of Health of Quebec for the generous provisions made for the conduct of the 1941 meeting.

Analysing the deficit, which amounts to \$1,403.56, it is seen that half the amount was incurred in the holding of the annual meeting under the conditions mentioned, and the remainder is due to increased printing costs, including the publication of *THE DEVELOPMENT OF PUBLIC HEALTH IN CANADA*.

In planning the budget for the current fiscal year, the Association was encouraged to go forward with its full program because of the continuing interest of the Canadian Life Insurance Officers Association. The work of the Canadian Public Health Association has been presented in detail to the officers of the Public Health Committee of that body. It is gratifying to have received word that at the annual meeting of the Canadian Life Insurance Officers Association, which was held on May 29th, a grant of \$3,500.00 was made to the Association for the year 1941-42. Dr. Phair as Honorary Secretary has conveyed to the

officers of the Canadian Life Insurance Officers Association the sincere thanks and appreciation of our members. Their continuing support is not only a source of strength to us but a challenge to every member to do his full part in advancing the program in public health in Canada, particularly in these critical days.

The budget for 1941, as passed by the Executive Committee, amounts to \$11,000.00. The conduct of such extensive work on so small a budget is possible only because of the amount of unpaid service given by the officers of the Association and the members of various committees. This financial report covers the second year in which Mr. Robert L. Randall has served in a full-time capacity as Executive Assistant, assisted by Mr. William Nichols. As Dr. Defries points out in the report of the Editorial Board, Mr. Randall has assumed the major responsibilities in the publishing of the JOURNAL, and I desire to add that, in his capacity of Executive Assistant, Mr. Randall, with the assistance of Mr. William Nichols, is carrying forward the work of the Association in all its activities, thus making it possible for Dr. Phair as Honorary Secretary to continue to direct the policies and program of the Association. The Association cannot, however, carry forward adequately its program without receiving financial assistance from the Federal Government. The work of the Canadian Public Health Association merits such support and without that support the Association cannot assume additional responsibilities and discharge fully its duties. The Provincial Governments have maintained their support through the recent difficult years, enrolling every medical officer of health as a member, and in this way giving full financial assistance. In closing this report, I would urge that the Executive Committee present to the Federal Government a specific request for financial assistance for the conduct of the Association's work during 1942.

Again during 1941 the Association was most fortunate in not having had to make provision for office space, rent, or telephone service. To the Director of the School of Hygiene, University of Toronto, I wish to express my appreciation of his kindness in making office space available for the editorial and financial work of the Association. To Dr. Gordon Bates, General Director of the Health League of Canada, our thanks are due for the use of the facilities available at the League's headquarters at 111 Avenue Road.

May 31, 1941.

D. V. CURREY, *Honorary Treasurer.*

CANADIAN PUBLIC HEALTH ASSOCIATION

REVENUE ACCOUNT

For the Year Ended 31st December, 1940

Schedule A

Revenue

Advertising.....	\$3,481.50
Subscriptions.....	3,119.37
Sanitary Inspector's Section.....	429.28
Profit on Reprints.....	78.26
Canadian Life Insurance Officers' Association—Grant.....	3,500.00
Bond Interest.....	45.00
U.S. Premium, etc.....	38.00
	\$10,691.41

Expenses

Printing	\$5,143.75
Postage on Magazines and Mailing—Cost	675.89
Commissions	694.33
Advertising and Promotion Expense	86.46
Honoraria	720.50
Salaries	2,476.60
Stationery and Office Supplies	217.26
Postage and Telegraph	345.90
Laboratory Section Expense	91.10
Canadian Rural Health Conservation Contest	218.62
Vital Statistics Section Expense	45.86
Public Health Nursing Section Expense	4.86
Convention and Meeting Expense	705.37
Development of Public Health in Canada	303.81
Public Health Expenditures	16.37
Survey of Milk Control in Canada	24.66
Miscellaneous Expense	181.70
Provision for Depreciation—Office Equipment	29.13
Discounts allowed and Bank Exchanges	112.80
	12,094.97

Loss for the Year transferred to Surplus Account

CANADIAN PUBLIC HEALTH ASSOCIATION

BALANCE SHEET

As at 31st December, 1940

ASSETS

Cash on Hand.....	\$ 459.96
Cash in Bank.....	1,017.96
Accounts Receivable—Advertising.....	\$ 315.70
Subscriptions.....	965.42
Reprints.....	78.97
Total.....	\$1,360.09
Less: Reserve for Doubtful Accounts.....	35.00
Deposit with Postmaster.....	1,325.09
15.00	15.00
Investments—Province of Ontario 4½% Bonds due in 1949—Cost.....	\$2,818.01
Canadian Public Health Journal.....	1,012.50
Office Equipment.....	\$ 145.65
Less: Reserve for Depreciation.....	78.96
66.69	66.69
Prepaid Expenses.....	1,066.69
507.50	507.50
	\$5,404.70

LIABILITIES

Prepaid Subscriptions.....	\$ 346.60
Accrued Commissions and Expenses.....	44.40
	391.00
Surplus:	
Balance as at 31st December, 1939.....	\$6,417.26
Deduct	
Loss for the Year (See Schedule A).....	1,403.56
	5,013.70
	\$5,404.70

Referred to in our report of this date attached.

GRAY, TESKEY AND HILL,

Chartered Accountants.

TORONTO: 17th January, 1941

REPORT OF THE EDITORIAL BOARD (1940)

IN the financial report the Honorary Treasurer records among the assets of the Association the CANADIAN PUBLIC HEALTH JOURNAL. From a strictly monetary standpoint, the Canadian Public Health Association possesses in its JOURNAL an asset of great value. When a journal is introduced, its value is small. That value increases and when, as in the case of the CANADIAN PUBLIC HEALTH JOURNAL, it enters its thirty-second volume, its value is correspondingly great. The Association can well be proud that the JOURNAL has been published without interruption since 1910. For eighteen years it was owned and published by a small group of members who met the deficits and continued its support. For ten years prior to the Association's assumption of responsibility for its publication, the JOURNAL was edited by Dr. Gordon Bates, to whom, for his enthusiasm and hard work, the Association will always be indebted. In 1928 the Association became the owner of the JOURNAL and the present editorial group have been responsible for its publication. They have been rewarded by a steadily increasing circulation and by expressions of appreciation from provincial departments of health and other bodies. Interest in the JOURNAL as a scientific publication is evidenced by the increasing number of requests for complete sets of back numbers. The JOURNAL is to be found in the leading scientific libraries on this continent. The circulation to European libraries has of course been largely discontinued but before the war the JOURNAL was received in most of the leading scientific centres.

From the standpoint of medical officers of health and other members of health departments, the twelve issues when bound constitute an annual year-book of public health in which is found the record of the progress of public health in every province and of important advances in every branch of preventive medicine. During 1940 the volume comprised six hundred and thirty-two pages, presenting seventy-five leading articles by more than one hundred authors. Abstracts of twenty-seven papers presented before the Laboratory Section on the occasion of the Christmas meeting were published in the January issue. The publication of these laboratory abstracts serves a highly useful purpose in affording the opportunity to laboratory workers to record their findings and to receive recognition for their work. The average monthly circulation (audited) for the year ending December 31, 1940, was 3,374 copies, as compared with 3,262 copies in 1939.

The policy of granting to undergraduate medical students and nurses in training in Canada membership in the Association, including a subscription for the JOURNAL, at the rate of one dollar for two years, has been continued. It has been felt that this is a very useful service that the Association can render and is helpful in keeping before these students the important place of preventive medicine.

The revenue from fees during 1940 amounted to \$3,119.37, approximately the same figure as that received last year. For the twelve issues of 1940 the revenue from advertising in the JOURNAL was \$3,481.50 as compared with

\$3,583.75 in 1939. The maintenance of this volume of advertising reflects the enlarged efforts of the JOURNAL in the advertising field. That the revenue can be increased is recognized and it is felt that the efforts made during the past two years will result in a larger number of companies using the JOURNAL for their announcements. Publication costs, including distribution charges and advertising commissions, amounted to \$6,600.43 as compared with \$6,048.51 in 1939—an increase of \$651.92 which was due to increased printing costs and distribution charges as well as to the printing of a larger number of copies and, on three occasions, of larger issues than usual.

The publication of THE DEVELOPMENT OF PUBLIC HEALTH IN CANADA, a one hundred and eighty-four page review of the history and organization of public health in the Provinces, with an outline of the present organization of the National Health Section of the Department of Pensions and National Health, which was issued in April, was well received. Of the first edition of five hundred copies, two hundred and fifty were distributed during 1940. From the interest that has been shown in this publication, the Association may well consider issuing such a publication with revisions at appropriate intervals. The volume gives a picture of public health organization and has been of value in the instruction of postgraduate students in public health as well as affording to interested persons in other countries an authoritative outline of public health in Canada.

During 1940 the Editorial Board, in cooperation with the Committee on the Certification of Sanitary Inspectors, issued a new edition of the MANUAL FOR SANITARY INSPECTORS which consisted of two hundred and sixty mimeographed pages with an index and numerous illustrations. It is hoped that the MANUAL may ultimately be published in printed form and consideration is being given to its translation into French.

The members of the Board are deeply conscious of the support of the Provincial Departments of Health. During the past difficult years each provincial authority maintained the full list of medical officers of health, nurses and other public-health personnel whose names had been enrolled as members of the Association, and this continuing support has made possible the carrying forward of the JOURNAL. It is recognized by the Board that the JOURNAL should be primarily a teaching medium and that it should serve as the means of presenting new work in the field of preventive medicine as well as reviewing problems and in general strengthening the work of local health departments.

I should not like to conclude this report without stating my personal debt to Mr. Robert L. Randall for assuming in large measure the editing and publishing of the JOURNAL. Valuable assistance has been given to the Editorial Board by Dr. A. H. Sellers in contributing many review articles in the field of public health administration and in the editorial columns.

May 31, 1941.

R. D. DEFRIES, *Chairman.*

PUBLIC HEALTH EDUCATION

COMMUNITY HEALTH IN RURAL MANITOBA

THEY said that it couldn't be done under the group-leadership method of study; that the lay people would introduce their own ideas and superstitions into the lessons; that they would consider themselves competent to care for illness in the home and thus delay calling professional aid. Experience with a course in family health conducted in Manitoba during the past three winters has proved the reverse to be the case.

Through the joint efforts of the Department of Agriculture and the Department of Health and Public Welfare, a simple practical course in family health for homemakers has been made possible. For years the accepted method of teaching health was by a first-aid course with little emphasis being placed on accident and disease prevention. The attitude was a negative one. It took disease and accidents for granted. The outline used for these lessons has attempted to take a more positive angle.

In the first lesson, in accordance with the plan outlined, accident prevention in the home and school is stressed. In order to impress more deeply on the minds of the members and stimulate interest among other members of the family, each was asked to complete a survey of her home and its surroundings from the point of view of discovering accident hazards and deciding what could be done to eliminate them. These surveys proved a source of enlightenment to many and the tool boxes were brought out, step-ladders were repaired, dark cellarways were lighted, children's toys were collected in the toy box, and bottles containing such poisons as iodine and lye were properly labelled and marked with a string or bell. This survey further showed that the most common accidents occurring in the home were of a minor nature

such as small cuts and burns. The first-aid taught dealt with the treatment of these rather than more spectacular injuries, stressing cleansing of a wound and the application of a homemade sterile dressing held in place by an easily applied if not handsome bandage which would stay on. The tailed bandage proved to be a great favourite, not only in binding up joints and jaws but also in keeping a dressing on almost any wound.

The discussion on the treatment of burns and frostbite proved to be the subject of great interest and showed that many remedies in common use were valueless if not actually harmful. The removal of slivers was a subject of interest to every member of the family, particularly the children; and there was a small boy who said to his mother as she was about to remove a sliver from his finger, "Don't use that needle, Mummy, 'til you've singed it!" On the other hand, one man walked a mile to give what he considered expert advice on the subject of stopping a nose bleed, to one of the leaders. He told her: "I wanted to be sure you knew about my remedy for stopping nose bleeds so you could tell your members. Everybody should know. Just put a piece of gummed paper in the roof of the mouth. There is nothing like it!"

The lesson on fractures proved to be a disappointment to some who took the course, since emphasis was placed on leaving the patient alone and calling the doctor immediately, rather than the application of cumbersome splints. However, simple methods of immobilization of fractures were demonstrated and methods of transportation of the injured when absolutely necessary were pointed out. The report on this lesson from one group illustrates their interest in it. "Our leader gave us a good

demonstration on how to lift an injured person on to a stretcher and how to improvise a stretcher. We all found this most interesting. We also know of one Christmas party where a demonstration of various carrying methods was given and we thought that it would be a good idea to have practice sometimes to help refresh our memory."

At the completion of this part of the course each member was expected to have a first-aid kit for the home and car. Also, as a community project, the various groups were expected to inquire regarding the first-aid materials kept in the local school. In some instances where no first-aid kits were provided, materials were collected and given to the school. In other cases, the school boards were interviewed and promised to provide materials.

The lesson on care of the patient in the home was introduced by a talk on health and its importance to the family and the community both socially and economically. Only the most simple procedures for the care of the sick were taught, with emphasis being placed always on the fact that such care is given for one of two reasons—to ensure the comfort of the patient or to help aid in recovery of health.

The lesson on prevention of communicable disease always proved to be the highlight of the course. It is along this line that we feel many of the old superstitions are being dissolved: the fallacies of hanging carbolic sheets across the doorway of the sick room, and that air-borne infection travels for miles around, are topics of interested discussion. The fact that soap and water, sunshine, and fresh air are the best disinfectants is not always readily accepted, perhaps because of its simplicity, but by the end of the course, having put the other lessons to the test, the groups feel that here, too, the information is correct and that a program of disease prevention is of great value. This is emphasized by the fact that, as a result of this course, some communities have organized toxoid and

vaccination clinics, and several areas are now considering tuberculin testing of all cattle. Very little time was taken in teaching the home care of communicable diseases. The necessity for strict isolation and absolute cleanliness was stressed. Attention was drawn to the provincial regulations regarding the shipping of milk when a case of communicable disease was present in the home and the possibilities for spread of infection elsewhere, if these were not obeyed. Since the members are entirely from rural areas and many ship milk, this is of importance.

For four years this course has been offered in rural Manitoba through the cooperation of the Extension Service of the Department of Agriculture and the Health Education Division of the Department of Health and Public Welfare. The groups organized are part of larger organizations, the Women's Institute, United Farm Women, Community Clubs and church organizations. Since the inception of this plan four years ago, 3,533 members, mostly women, have been enrolled in forty centres. The minimum enrollment accepted at any centre is forty members or a total of four groups. Each group selects two leaders who meet the instructor sent out by the Department of Health and Public Welfare once each month for a lesson. These lessons are relayed to the members of the group by their leaders and lesson notes are provided for each member in every group.

The formal instruction of the course is completed with what is known as an "achievement day". At this program the various groups display their first-aid kits, note books and posters, and arrange items relating to each lesson. These range from a very solemn demonstration of the lesson—exactly as taught—to an hilarious "take-off" on grandmother's remedies. Appropriate songs are composed and sung with gusto.

The success of a course such as that outlined depends on transferring the

enthusiasm of the group from the spectacular things which they think they would like to take care of and which they will probably never see, to the trifling incidents in every-day life. This makes a real problem for the instructor but one which can easily be met if the subject is approached in the right manner. The success of the course can be measured in terms of

interest and enthusiasm not only of the members, some of whom walked ten miles to attend the lessons, but by the entire community in the action they take in regard to disease and accident prevention.—*Mary E. Ring, Reg.N., Public Health Nurse, Department of Health and Public Welfare, Province of Manitoba.*

THE MEDICAL SOCIETY AND HEALTH EDUCATION

IN an effort to acquaint both professional and lay groups with new developments in the medical world, the Minnesota Medical Society has developed a highly successful system of sending out "monthly packets" of literature. The Health Education section of the society, in co-operation with the Health Education Division of the State Health Department, selects suitable topics for each month, coinciding where possible with national programs, such as "Child Health Day", "Social Hygiene Day", or by simply choosing subjects of seasonal interest. Outstanding medical men in the State are asked to prepare articles on the subject chosen.

Each month a short summary of the material in the packet is published in the State Medical Journal, and one of the weekly radio broadcasts, for which the medical society is responsible, is devoted to a discussion of the topic of the month. Physicians throughout the State are urged to write for the packet,

which is sent only on request. The demand for these is greatly increasing.

The whole scheme grew out of a plea from the medical profession that they be supplied with interesting and valuable material, written in a form that could be easily understood by lay audiences. Particularly in the rural areas, the physician is frequently asked to give a short talk and often he feels at a loss in knowing what topic to choose, let alone finding the time to prepare it. The packets are supplying source material for such discussions by dealing with such subjects as "Communicable Diseases", "The Common Cold", "Backache", "Arthritis", "The Prevention of Blindness" and so on. The great increase in the distribution of the packets indicates their growing popularity. Medical societies in Canada would do well to consider a similar program.—*A. Marguerite Swan, M.D., D.P.H., Director, Division of Health Education, Department of Health and Public Welfare, Province of Manitoba.*

"DON'T TAKE CHANCES WITH COMMUNICABLE DISEASES"

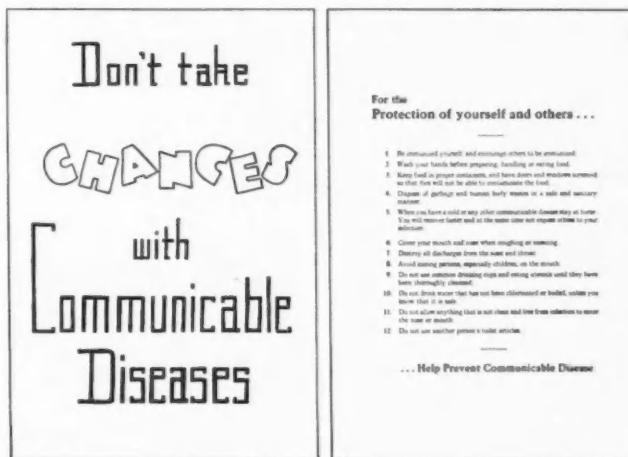
TO meet a demand for information regarding communicable disease, the Department of Health and Public Welfare of the Province of Manitoba has prepared a pamphlet, to supplement the usual list of reportable communicable diseases and the regulations relating to their control which is posted in every school. "Don't Take Chances With Communicable Diseases" has become one of the most popular pieces of

health literature distributed by the Division of Health Education and is in demand not only by the medical profession but by teachers and schools of nursing. It is an eight-page bulletin printed on heavy white paper, and having a pale blue cover with black and white printing which adds to its attractiveness.

Beginning with the words "We can't afford to take chances with COM-

MUNICABLE DISEASES . . . they are preventable!" the text of the pamphlet goes on to discuss briefly, and in language clearly understandable

—vaccination against smallpox, toxoid against diphtheria, toxin against scarlet fever, vaccination against whooping cough and typhoid fever. The age at



to the layman, the causes of these diseases and how they are spread. It deals with the subject of immunity in a general way and then describes methods of preventing communicable disease. General means are described first—quarantine and isolation, personal hygiene, sanitation, safe water supply and pure food are mentioned; and then it is stated that "most important of all in the prevention of communicable disease is IMMUNIZATION". Specific means are discussed

which these are most effectively given, the number of doses advised, and the expected length of immunity are described. Next follow two pages of tables setting forth the reportable communicable diseases in Manitoba, together with the regulations regarding their control.

On the back cover, under the caption "for the protection of yourself and others . . ." appears a list of suggestions which, if followed, will result in fewer cases of communicable disease.

PUBLIC HEALTH ADMINISTRATION

THE ANNUAL CONFERENCE OF THE ONTARIO HEALTH OFFICERS ASSOCIATION

THE twenty-seventh annual meeting of the Ontario Health Officers Association was held in the Royal York Hotel, Toronto, on May 22nd and 23rd, in conjunction with the Canadian Institute of Sanitary Inspectors (Ontario Branch). The Veterinary Public Health Services Section, organized at the 1940 meeting, met for the first time. The combined attendance was five hundred.

No dinner session was held this year but a luncheon meeting was held on each day of the conference. The speaker for the first luncheon was Group Captain R. W. Ryan, Director of Medical Services, Royal Canadian Air Force, who gave an interesting and valuable talk on certain aspects of aviation medicine. The second luncheon was the business meeting of the Association, upon which occasion the President paid tribute to the members who had died since the last conference. Special mention was made of Dr. J. W. S. McCullough, Dr. J. G. Fitzgerald, and Sir Frederick Banting. The meeting stood during the reading of the following list of members who had passed on: Dr. O. L. Berdan, Strathroy Township; Dr. R. D. Dewar, Ekfrid Township; Dr. G. W. O. Dowlesy, Thorah Township; Dr. A. B. Hyndman, Huntley and Torbolton Townships; Dr. R. Johnston, Kennebeck Township; Dr. J. A. Kane, Dack Township; Dr. D. McKay, Collingwood Township; Dr. J. G. McKee, James Township; Dr. C. E. McLean, East York Township; Dr. E. W. McNeice, Aylmer and Malahide Township; Dr. H. McG. Patterson, Rodney; Dr. J. F. Rigg, Niagara; Dr. N. W. Rogers, Barrie; Dr. T. D. Rutherford, Burford Township; Dr. G. S. Sadler, Bangor, Radcliffe and Raglan Townships; Dr. A. A. J. Simp-

son, Ashfield Township; Dr. J. B. Stallwood, Beamsville; and Dr. G. D. Lockhart, King Township.

The Secretary also read the names of those who have entered military service and the list of those who retired during the year:

Enlisted Members

C. G. Bell, Lion's Head.
W. H. Carson, Southampton.
E. J. Cloutier, Ansonville.
P. Poisson, Tecumseh.
F. Adams, Windsor.
R. R. Burnett, Durham.
J. B. Aiken, Fisherville.
C. D. Kilpatrick, Blyth.
C. C. Misener, Crediton.
W. A. McKibbon, Wingham.
R. L. Norris, Wyoming.
E. S. Bissell, Mallorytown.
H. C. Burleigh, Bath.
J. P. McManus, Tamworth.
F. A. Strain, Gore Bay.
Sandford English, Simcoe.
W. B. Marshall, Colborne.
J. A. McDonald, Hastings.
G. A. C. Webb, Drumbo.
T. B. Feick, New Hamburg.
R. B. Gillrie, Mitchell.
J. G. Kirk, Listowel.
Wm. Aberhart, Mitchell.
O. Van Luven, Consecon.
C. W. McCormack, Renfrew.
J. M. Nettleton, Penetanguishene.
R. W. Mole, Tottenham.
W. A. Milligan, Cornwall.
J. Feller, Warren.
G. E. McCartney, Fort William.
L. V. Shier, Lindsay.
K. B. Waller, Rockwood.
L. M. Stuart, Guelph.
C. V. Milligan, Forest Hill.
W. L. Carruthers, Mount Albert.
H. R. Adams, Long Branch.
G. Allison, Picton.

Retired Members

H. E. Peart, Elmwood.
J. A. McInnes, Timmins.
F. Martin, Dundalk.
H. O. Singer, Markdale.
A. H. Jeffrey, Baysville.
C. E. Lindenfield, Bala.
W. Robertson, Elora.
W. H. Oaks, Bright.
E. A. Burns, Inglewood.
A. T. Shanette, Everett.
Wm. Glaister, Wellesley.
Wm. Geiger, Waterloo.
E. C. McFarlane, Arthur.

Following the reception of the report of the Nomination Committee, of which Dr. G. B. Stalker, Hanover, was convenor and Dr. H. M. Young, Iroquois Falls, and Dr. C. H. Bird, Gananoque, were members, the President introduced the President-elect, Dr. H. B. Kenner, to the meeting. Other nominations were: 1st Vice-president, Dr. J. C. Gillie; 2nd Vice-president, Dr. J. W. Mackie; Secretary, Miss Mary Power. The members of the Executive, representing the Districts of the Ontario Medical Association, are: Dr. C. A. Harris, London; Dr. J. E. Davey, Hamilton; Dr. J. W. Mackie, Lansdowne; Dr. G. B. Stalker, Hanover; Dr. W. E. Brown, Orillia; Dr. H. M. Young, Iroquois Falls; Dr. G. S. Cronk, Belleville; Dr. D. G. Dingwall, Dryden; Dr. C. H. Bird, Gananoque; and Dr. M. G. Thomson, Cornwall.

The Resolutions Committee, composed of Dr. J. E. Davey, chairman, Dr. C. A. Harris, and Dr. J. W. Mackie, brought in a report sponsoring four resolutions, all of which were adopted:

1. Be it resolved that the Ontario Health Officers Association send to the Minister of Health a recommendation that provision be made in the Regulations under the Public Health Act requiring that the local boards of health make available in the municipality immunization facilities for the prevention of those communicable diseases for which preventive measures are recommended and biological products supplied by the Department of Health of Ontario.

2. Be it resolved that this Conference submit to the Minister of Health the suggestion that serious consideration be given to the setting up of a standard rate of allowance for attendance at the annual conference of medical officers of health.

3. In view of the fact that the great need of our country for the present and future generations is to make sure that the youth of our country should

be of the highest standard of mental, moral and physical fitness,

Be it resolved that this Conference request that serious consideration be given by the Executive Committee to the advisability of initiating a campaign of education for young people contemplating marriage; and to the preparation of a brief for submission to the Provincial Secretary requesting his consideration of such amendments to the Solemnization of Marriage Act as will ensure that good health and sound constitution be necessary prerequisites for those entering the marital relation.

4. Be it resolved that this Conference request the Executive to include in each year's program a period for a round-table discussion with the various directors of the Department; and that previous to the convention medical officers of health be requested to forward to the Secretary a statement of the most serious problems and difficulties that have been encountered during the year.

The following resolution, drawn up by the medical officers of health from communities of four thousand and over, was submitted from the floor. After discussion it was adopted by the Meeting.

5. Be it resolved that this Conference (medical officers of health in municipalities of four thousand and over in Ontario), recommend that all recruits to all branches of the Canadian Active Services have a blood serological test in the routine examination for the service and on discharge; and that this resolution be forwarded to the responsible authorities.

Following the submission of resolution no. 3 the following motion was offered as an amendment:

Be it resolved that the Ontario Health Officers Association recommend to the Minister of Health legislation providing that no feeble-minded inmate of an Ontario Hospital, capable of bearing children, be discharged until an effort has been made to secure the con-

sent of the parent or guardian to the voluntary sterilization of such inmate.

The meeting questioned the status of the motion as an amendment; it was then submitted as a separate motion and later adopted.

The meeting showed its appreciation of the program by a full attendance and sustained interest in the general sessions. The plan of holding section meetings on the second morning of the conference was heartily endorsed and resulted in an unanimous expression of satisfaction, accompanied by a request for a repetition of the plan at the next conference. The Veterinary Public Health Services Section, under the guidance of Dr. H. G. Davis of Aylmer, arranged a program of great interest and value. The Canadian Institute of Sanitary Inspectors increased their attendance and accomplished a great deal during the two days of the meeting. The members of the group who submitted papers based their material on wide experience and technical knowledge which speaks well for the future contribution of this group to public health in Ontario.

AWARDS IN THE 1940 CANADIAN RURAL HEALTH CONSERVATION CONTEST

THROUGH an unfortunate error the name of Nicolet County Health Unit was omitted from the list of winners in the 1940 Canadian Rural Health Conservation Contest, published on page 269 of the May issue. It received one of the three equal awards in the Eastern Division, sharing this honour with the Terrebonne County Health Unit and the St. Jean-Iberville-Laprairie-Napierville Health Unit.

THE MEETING OF THE ONTARIO BRANCH OF THE CANADIAN INSTITUTE OF SANITARY INSPECTORS

THE annual meeting of the Ontario Branch of the Canadian Institute of Sanitary Inspectors was held in To-

ronto on May 22nd and 23rd in conjunction with the annual conference of the Ontario Health Officers Association. Mr. D. S. McKee, President of the Branch, presided. The section meetings provided six speakers from amongst the membership of the Institute. The meeting was also addressed briefly by Dr. B. T. McGhie, Deputy Minister of Health of the Province, and Dr. J. G. Cunningham, Director of the Division of Industrial Hygiene. The program included two luncheon meetings, the first of which was addressed by the Hon. Harold J. Kirby, K.C., Minister of Health. The sessions concluded with the Annual Meeting of the Institute. It was decided to form a Committee on Resolutions to formulate recommendations on various matters concerning sanitary inspection work for submission to the Department of Health.

The following officers were elected: President, Mr. D. S. McKee, C.S.I. (C.); Secretary-Treasurer, Mr. M. F. Matthews, C.S.I.(C.); Provincial Directors, Mr. W. Dodge, C.S.I.(C.), London; Mr. J. M. Johnston, C.S.I. (C.), Toronto; Mr. J. O'Hanley, C.S.I.(C.), Hamilton; Mr. R. M. MacPherson, C.S.I.(C.), Peterborough; Mr. H. McIntyre, C.S.I.(C.), Kirkland Lake; Mr. T. G. Miller, C.S.I. (C.), Windsor; Mr. R. W. Ruggles, C.S.I.(C.), Toronto; and Mr. E. D. Taylor, C.S.I.(C.), Brantford.

HEALTH EXAMINATIONS FOR HOUSEHOLD WORKERS IN MONTREAL

THE danger of contact infection in the home, especially to children, from adults suffering from unrecognized communicable disease, is becoming increasingly realized. The matter has been taken up by the American Academy of Pediatrics through their Contact Infection Committee, and efforts are being made to educate both the medical profession and the public in regard to the risks involved and the advisability of regular examinations for all adults in close association with chil-

dren. Domestic employees are among those coming most intimately in contact with children, and hence are most likely to be the medium of infection. Various American communities are attempting to provide adequate testing facilities for this group, and to devise a system of certification for those found free from transmissible disease.

Dr. R. R. Struthers and Dr. Alton Goldbloom discussed the question at a recent meeting of the Section of Paediatrics of the Montreal Medico-Chirurgical Society. At their suggestion, a committee was appointed to explore ways and means for the setting up of a centre for the examination and health certification of household workers, and to carry on the necessary educational publicity. This Committee on Health Service for Household Workers is made up of the following: Dr. Aubrey K. Geddes, Chairman of the Section of Paediatrics, and Dr. R. Cameron Stewart, Secretary; Dr. R. R. Struthers, Professor of Paediatrics, and Dr. Grant Fleming, Professor of Public Health and Preventive Medicine, McGill University; Dr. L. M. Lindsay, Consultant to the Child Welfare Association of Montreal, Dr. Alton Goldbloom, District Chairman of the Academy of Pediatrics, and Dr. Alan Ross, Chairman of the Section of Paediatrics for the coming year.

Arrangements are under way to effect the purpose in view, and it is hoped to have a satisfactory plan in operation in the near future.

FORMATION OF A QUEBEC BRANCH OF THE CANADIAN INSTITUTE OF SANITARY INSPECTORS

A QUEBEC branch of the Canadian Institute of Sanitary Inspectors was formed at an inaugural meeting held in Montreal on March 24th. Those present included Mr. D. S. McKee, President of the Ontario Branch, and Messrs. Philéas Larochelle, A. G. MacNab, J. E. Daignault, L. G. Forté, J. A. Paré, G. Bouchard, G. E. Cross, J. A. Hotté, J. P. A. Gonville, M.

Carboneau, Aldéric Lapointe, J. A. Belanger, E. Martel, J. A. Desjardins, R. Archambault, V. Benoit, T. O. Lavoie, and F. Brunelle. The following officers were elected: President, T. O. Lavoie, Chief Sanitary Inspector, Montreal; Secretary-Treasurer, François Brunelle, Food Inspector, Montreal; Directors, A. G. Macnab, Sanitary Inspector, Westmount; Philéas Larochelle, Sanitary Inspector, Chicoutimi County Health Unit; J. A. Paré, Chief Plumbing Inspector, Montreal; G. Bouchard, Chief Milk Inspector, Montreal; L. G. Forté, Chief Food Inspector, Montreal; and J. E. Daignault, Food Inspection Division, Department of Health, Montreal. Dr. A. J. G. Hood, Superintendent of Food Inspection, and Mr. J. A. Cousineau, Superintendent of Sanitation, were elected honorary members.

DIPLOMAS IN PUBLIC HEALTH AND IN VETERINARY PUBLIC HEALTH GRANTED BY MCGILL UNIVERSITY

At a convocation held on May 29th the following awards were made in the Faculty of Medicine of McGill University. The Diploma in Public Health was awarded to Dr. Leonard C. Huggins, Nassau, Bahamas; Dr. G. Ronald McCall, Montreal; Dr. Ajudhia Persaud, Demerara, British Guiana; and Dr. Assad J. Zadé, Tabriz, Iran. The Diploma in Veterinary Public Health was awarded to Dr. Joseph Dufresne, La Trappe, Que.; Dr. John A. Folinsbee, Edmonton; Dr. Paul Jacob, Montreal; Dr. Melville R. Knox, Millbank, Ontario; and Dr. Oskar S. Nordland, London, Ontario.

PROFESSIONAL INSTITUTE MEDAL AWARDED TO DR. F. S. BURKE

THE Professional Institute Medal, awarded annually for outstanding contributions in "research, administration, or industrial organization by any member of the professional services of the Provincial or Dominion Governments",

was presented this year to Dr. Frederick S. Burke, of the Department of Pensions and National Health. The award was made to Dr. Burke in recognition of his study, over a number of years, of the mortality among war pensioners, particularly those suffering from tuberculosis, and the valuable findings and suggestions made by him which have had a far-reaching influence on the medical conduct of the present war. Dr. Burke, who was born in Fergus, Ontario, graduated in medicine from the University of Toronto in 1911. He saw extended service overseas during the first great war and was twice mentioned in despatches. Before joining the Department of Pensions and National Health he was Director of Medical Services in the Department of Public Health of Toronto.

DEATH OF DR. FRANCOIS XAVIER DUPLESSIS

DR. FRANCOIS XAVIER DUPLESSIS died at Paris, France, on April 4th, following a lengthy illness. He was born on March 3rd, 1876, at Richmond, Quebec. After graduating from Laval University, Montreal, in 1897, he practised medicine in Richmond and Montreal. In 1905 he went to Paris for post-graduate study, specializing in diseases of the eye. He was made a Chevalier of the Legion of Honour for his services. He joined the staff of

the Department of Health of Canada with the Medical Immigration Service in 1927, and served faithfully and efficiently at Paris until its evacuation. During the flight from Paris his wife was fatally wounded by enemy action, and Dr. Duplessis had to bury her quickly, adjacent to the road, with the help of other refugees.

BRANTFORD'S DIPHTHERIA RECORD

IN an editorial published in the March issue of the JOURNAL it was stated that Brantford, Ontario, with a population of 30,000, had maintained its record, for the eighth consecutive year, of having no diphtheria. Actually, Brantford's record is even better than this. On November 18th, 1940, it completed its tenth year without diphtheria.

APPOINTMENTS

DR. CHARLES H. BEST has been appointed Director of the Banting and Best Department of Medical Research in the University of Toronto, succeeding the late Sir Frederick Banting.

DR. L. A. CLARKE has been appointed Assistant Medical Officer of Health for the City of Hamilton. Dr. Clarke has been Acting Medical Officer of Health for the City of Peterborough during the absence of Dr. Murray Fraser.

